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MASTER'S THESIS AND
FIELD STUDY ABSTRACTS

July 1971 / June 1974

St. Cloud State College / St. Cloud, Minnesota

MASTER'S THESIS AND FIELD STUDY ABSTRACTS 1971-1974

Foreword

This publication the fifth in a series which began in 1962, contains the abstracts of Master's Theses and Field Studies completed by graduate students of St. Cloud State College. The bulletin contains those theses completed during the period from July 1971 through June of 1974.

A bound copy of each thesis is on file in Centennial Hall, which houses the library on this campus. The library copy of each thesis is available for use on an interlibrary loan basis.

Copies of this bulletin may be obtained from the School of Graduate Studies, St. Cloud State College, St. Cloud, Minnesota 56301

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BUSINESS EDUCATION AND OFFICE ADMINISTRATION

AN EVALUATION OF THE ACCOUNTING CURRICULUM IN THE ALEXANDRIA AREA TECHNICAL SCHOOL

Elvin E. Glein

The purpose of this study was to evaluate the accounting curriculum in the Alexandria Area Technical School, Alexandria, Minnesota, to determine if the curriculum is adequately preparing the accounting graduates for duties and responsibilities required in the field of accounting.

The adequacy of preparation was measured by the types of positions held and by the duties performed by the graduates. Employers' opinions of the graduates capabilities and performance were also used as evaluative measures.

Each of the 90 accounting graduates during the school years of 1968 through 1972 was asked to respond to a questionnaire. The questionnaire technique was also used to survey the 47 employers of these graduates. Responses were received from all 90 graduates and from 43 of the 47 employers.

A majority of the accounting graduates indicated that they were employed in positions where they were using their knowledge of accounting. This would indicate that the graduates were employed in positions for which they were trained.

The graduates indicated that intermediate accounting, business machines, and business correspondence were considered as being the most important subjects in the curriculum. Economics, advanced cost accounting, and advanced data processing were considered of least importance in the curriculum. Graduates indicated that instruction in speech and business correspondence should be given more emphasis in the curriculum. This indicates that graduates become more aware of the need for good communication skills after graduation.

Employers were asked to indicate to what degree accounting graduates were meeting the needs of their firms. Employers indicated that the graduates were performing satisfactorily. This indicates that the graduates possess saleable skills which meet employers' needs.

Employer recommendations for curriculum revision centered primarily on communications. This indicates a correlation between employer and graduate responses indicating a need to intensify oral and written communication in the accounting curriculum.

A majority of employers indicated that salaries for accounting graduates were adjusted to compensate for post-secondary training. This indicates that employers are aware of the value of post-secondary vocational training.

The conclusions reached in this study are based upon information acquired from the accounting graduates and employer questionnaires.

APPROVED BY THESIS COMMITTEE, FEBRUARY 1973

Russell Madsen, Chairman

MANAGEMENT AND FINANCE

AN ANALYSIS OF PROMOTIONAL ADVERTISING FOR MINNESOTA (1971-72)

Oliver Donald Billing, Jr.

State-level promotional advertising and, specifically, the development of Minnesota's tourism media schedule for 1971-72 is the focus of this study. A review is made of the traditional means of state-level appropriation of funds, the hierarchy of tourist promotional advertising, and the advertising agency selection process and how these methods can be more effective.

analyzed in terms of media schedule development and market segmentation. Media schedule and market segmentation considerations are inter-dependent.

Media schedule evaluation is made in terms of ad format, impact and cost. Format and cost are analyzed within the magazines selected by the state. Ad cost, is investigated on a cost-per-reader basis.

Market segmentation is based on location of tourist markets, season and recreational activities, and tourist demographic criterion. Market segmentation helps to choose magazines which are widely read by tourist-prone people and influences ad cost effectiveness.

Critical reader cost components are total ad cost, magazine circulation, secondary and cross-readership, and market coverage as well as tourist demographic characteristics. The relationship is:

$$\text{Cost Per Reader} = \frac{\text{Total Ad Cost}}{\left(\text{Circulation} \right) \left(1 + \text{Secondary Readership} \right) \left(1 + \text{Cross Readership} \right) \left(\text{Magazine Market Coverage} \right) \left(\text{Demographic Characteristic} \right)}$$

The model has three applications in tourism promotion. Inter-media and inter-state comparisons can be made, but the major use is in media selection on a cost-per-reader basis. Subjective factors are also introduced in the model's process to insure realistic media selections.

RESULTS: Generally, Minnesota's ad format and resulting ad impact seem poorly planned. Minnesota does not exploit ad format opportunities and ad position is not carefully chosen. Ad color changes appear due to the new expense of inquiry cards.

Better Homes and Gardens plus Field and Stream is recommended as the optimal media pair. This combination results in the least cost. The readerships reflect the husband's dominance in vacation decision-making. Both magazines have large unduplicated readerships and traditionally yield above-average coupon response rates. The cost in other tourist-prone categories verifies Better Homes and Gardens plus Field and Stream as the optimal magazine selection.

APPROVED BY THESIS COMMITTEE, FEBRUARY 1973

LaVerne A. Cox, Chairman

AN ANALYSIS OF THE HOSPITAL WAGE AND BENEFIT PROGRAMS IN HEALTH CARE PLANNING DISTRICT D

Gregory L. Nystuen

Attracting, retaining, and motivating a competent workforce is one of the major responsibilities of any hospital administrator. The maintenance of a competitive wage and benefit program plays an essential role in the fulfillment of this major responsibility. To maintain a competitive wage and benefit program, the administrator must be sensitive to the wage and benefits offered by other hospitals of comparative stature. In order to gain insight into competitive wage and benefit programs, the hospital administrator must: (1) collect wage and benefit data from hospitals of comparative stature; (2) compile the data in a meaningful manner; and (3) develop a method for the analysis of that data.

The focus of this study is the wage and benefit programs offered by the private and community hospitals in Health Care Planning District D. Wage and benefit surveys have been conducted at these hospitals, and the findings have been presented herein in a systematic fashion. The wage and benefit programs offered by competitive hospitals should be the most useful tool of the hospital administrator in establishing the wage and benefit programs for his institution.

Based on the wage data collected, the administrator can develop his own wage program through the use of mean minimum and mean maximum wages for each position. Through the use of mean minimum and mean maximum wages, the administrator can satisfy the three basic requirements of a systematic wage program:

- (1) salary range and job classification graduations and progressions that relate to one another internally commensurate with other hospitals;

- (2) salary ranges that have the proper depth to afford salary advancement within a particular job classification; and
- (3) salary scales that are competitive.

Similarly, through the use of benefit survey data, the administrator can determine which benefits are to be offered to his hospital's employees, relative to other hospitals of comparative stature.

APPROVED BY THESIS COMMITTEE, JUNE 1974
LaVerne A. Cox, Chairman

COMMON STOCK OWNERSHIP: TRANSFERENCE ANALYSIS

James R. Sauer

PROBLEM: The problem researched in this thesis is the extent to which the present transfer time for common stock may be reduced and alternatives available to accomplish this. The purpose of this study is to provide information in this area that is considered important to the brokerage industry, banking industry, regulatory institutions, stock exchanges, investors, scholars, and other interested parties.

SCOPE: The study emphasizes the limitations and deficiencies surrounding the stock certificate. Background for the study is provided by a review of current literature and its ramifications in brokerage, banking, and market trading.

The results of this study provide a supplement to research already conducted in this area and hopefully an impetus for further study and recommendation.

FINDINGS: The problems afflicting Wall Street emanated from numerous sources, the primary one being an unanticipated increase in trading volume. Inaccurate forecasting of trading volume by the NYSE in 1965 created an unnecessary void in immediate planning. Similarly, inadequate staffing, as well as few joint efforts by the securities industry toward the adoption of a long-range program, severely hampered Wall Street operations.

A system connecting brokers, exchanges, OTC markets, clearing houses, and depositories by means of a locked-in-trade will provide the basis for the certificateless processing of ownership. The transfer agent would be connected to the locked-in-trade to provide automatic entry of trades into the stockholder's register.

RECOMMENDATIONS: Brokerage firms and bank transfer agencies should continue to develop computerized technology that will result in reduced transfer time and more efficient operations.

CCS should continue to expand by the inclusion of all actively traded stocks, both exchange and OTC stocks. CSDS should evolve from CCS and include the stocks of all sectors of the investing public.

The certificateless system should be studied in depth to determine its overall feasibility. Legislation should be proposed and enacted to allow for a certificateless transfer system. Computer technology should be refined in regard to the locked-in-trade.

APPROVED BY THESIS COMMITTEE, MAY 1972
LaVerne A. Cox, Chairman

AN ANALYSIS OF TRANSFER PRICING METHODS IN RELATION TO DIVISIONAL PROFIT MEASUREMENT AND MANAGER PERFORMANCE EVALUATION

Charles A. Sjoquist

The method of assigning quantitative values to intra-company transfers of products in a divisionalized firm is termed transfer pricing. There is general agreement among authors as to the origin of, the need for, and the objectives of transfer pricing and the necessary conditions for an effective transfer pricing system. The disagreement exists as to the best method to be used

in establishing transfer prices.

The transfer pricing problem arises out of the interdependencies which exist between the separate autonomous operating units after divisionalization is implemented. Top level management may design the transfer pricing system to provide information for divisional profit measurement and evaluation of divisional manager performance.

The five basic methods of establishing transfer prices are, (1) cost, (2) cost plus a markup, (3) marginal cost, (4) market price and (5) negotiated price:

The completely autonomous operating units must have operational independence, access to sources and markets, separable costs and revenues and maximum profit intent. Also, the division must be given the freedom in company policy to make all operating decisions independent of corporate management. Transfer prices for divisions in this category should be established by the negotiated method. This method will provide the most realistic profit information for divisional profit measurement and performance evaluation.

Restricted units do not have the freedom to operate independently. Transfers between these divisions should be priced at historical cost for corporate profit determination and inventory control. The firm should seek non-profit criteria for divisional manager performance evaluation.

APPROVED BY THESIS COMMITTEE, MARCH 1973

LaVerne A. Cox, Chairman

EDUCATIONAL ADMINISTRATION

IMPLICATIONS OF EXTENDED SCHOOL YEAR PLANS FOR THE ANOKA-HENNEPIN SCHOOL DISTRICT

David G. Irber and Bruce D. Schlueter

PROBLEM: The purpose of this study was to examine the 45/15 Plan and the Quarter Plan in order to determine the main characteristics, and the advantages and disadvantages of each plan. The study was also to determine what effect the adoption of a year-round school plan in the Anoka-Hennepin School District would have on the community, school staff, students, curriculum and District Eleven's school budget.

PROCEDURE: Information for this study was obtained from a comprehensive review of research and professional literature, personal interviews, attendance at a national year-round school conference and visitations to the Mora, Minnesota Public School District.

FINDINGS: The study revealed that:

1. Economic and educational factors have promoted a renewed interest in year-round school plans.
2. Today there are over one-hundred extended school year plans in operation or under study.
3. The majority of extended school year plans in operation or under examination are the 45/15 Plan and the Quarter Plan.
4. Curriculum revision is necessary.
5. Additional funds are being made available to school districts for study, implementation and evaluation of year-round school plans.
6. Year-round school plans usually fail because of a lack of community understanding and involvement with the year-round program.
7. Successful year-round school plans lower operating costs, avoid or delay building construction, improve the curriculum and win the support of the community.
8. One-third more students can be accommodated with existing facilities under a 45/15 Plan or Quarter Plan.
9. For financial savings to be realized each student's attendance must be mandated to approximately 180 days a year.
10. Start up costs will negate the savings of the first few years of a year-round

school operation.

11. Anoka-Hennepin School District could accommodate an additional 11,000 students if it were on a 45/15 Plan or Quarter Plan.
12. Enrollment projections for Anoka-Hennepin show an increase of 750 students per year for several years.

CONCLUSIONS: It was concluded that:

1. The Anoka-Hennepin School District should initiate a plan to convert to a year-round school program over a period of fourteen-years in order to delay new building construction, and to house its present and future increasing enrollments with its present facilities.
2. On a year-round school plan, Anoka-Hennepin could save \$55,000,000 in educational costs over a fourteen-year period.

APPROVED BY FIELD STUDY COMMITTEE, JUNE 1974

James W. Anderson, Chairman

A DESIGN OF AN EVALUATION MODEL FOR THE IGE/MUS PROGRAM AT LAKE JOHANNA ELEMENTARY SCHOOL

Thomas Jacobson

This paper designs an evaluation model for the purpose of forming a frame of reference for evaluating the IGE/MUS program at Lake Johanna Elementary School, Mounds View School District # 621. It suggested evaluation procedures for three main areas: 1. evaluation of student's in cognitive and affective development; 2. evaluation of the school's faculty with regards to attitudes, effectiveness, and involvement; and, 3. evaluation of the awareness, attitudes, and involvement of the school's community.

The model suggested that evaluation of pupil growth in cognitive development be based on two interrelated measures: 1. achievement tests; and, 2. scholastic aptitude tests. It investigated the similarities and differences of these two and also explored norm-referenced achievement tests and criterion-referenced achievement tests.

In the area of affective development, this model suggests two basic techniques: 1. self-reports; and, 2. inference based on observation, and gives specific examples of each.

The evaluation of the school's faculty is based on three basic techniques: 1. observation; 2. objective instruments; and, 3. rating forms. The model suggests instruments to be used with these techniques and explores Flander's System of interaction analysis and Goldhammer's observation cycle.

The evaluation of the school's community is based strictly on surveys. One survey deals specifically with community awareness, one with attitudes, and one with involvement.

This paper is not an evaluation system, but a procedure to follow when designing a comprehensive evaluation program.

APPROVED BY THESIS COMMITTEE, JULY 1973

George Farrah, Chairman

THE EFFECT OF PERIODICAL NEWSLETTERS ON PARENTAL ATTITUDES TOWARD ELEMENTARY MATHEMATICS

James K. Vick

It was the purpose of this study to determine whether a periodic newsletter concerning the mathematics curriculum of a particular classroom would have any positive effect on parents' attitudes toward that same curriculum.

The researcher decided to use rural, suburban, and urban settings. Experimental and Control groups were requested from the Elk River, Robbinsdale and Minneapolis School Systems. A control group and experimental group were selected in each district.

Both groups were then given a questionnaire designed to measure one's attitude toward elementary mathematics and school in general. This test was repeated after the treatment period.

Parents in the experimental groups were mailed bi-weekly a newsletter containing information on the activities and goals of the mathematics class their child attended. The control groups received only the standard school-home communications.

Following the 15 week treatment period the post-test of parental attitudes was given. The control groups have a t value of .1916 under 50 degrees of freedom. This group did not make any significant change in attitude.

The experimental group had a t value of 3.227 under 50 degrees of freedom. This was a significant change in attitude.

The researcher believes this does indicate periodic newsletters concerning classroom activities does have a positive effect on parents. It would seem profitable for school districts to start to use grass-roots public relations. The researcher also believes many possible variables need to be investigated.

APPROVED BY THESIS COMMITTEE, MARCH 1974

James W. Anderson, Chairman

A SIMULATED MODEL FOR FORECASTING SCHOOL GROWTH AND SITE DEVELOPMENT

Curtis J. Wilcox

The primary purpose of this study was to identify, analyze, and compare various demographic factors for use in a simulated model. Another important purpose was to develop more valid and easily adaptable methods in order to help educational planners in forecasting growth and site developments.

While the simulated community of Linderson was fictitious, there were bona fide sources of data which included: 1) review of the pertinent literature; 2) information relevant to electrical meter box installation; 3) traffic and aerial maps; 4) a cohort survival projection; 5) various indices of growth; 6) interviews; and 7) projected entries for school enrollments.

In order to effectively build the simulation model, methodological inquiry consisted of tabular and content analysis of various demographic indicies. Moreover, other research techniques involved the use of "divisions," or of dividing a school district into a number of specified areas; statistical analyses of various population characteristics associated with change, growth, or analysis; confidence intervals were employed to cope with the factor of variability which provided maximum or minimum levels of expectations, rather than a linear, fixed rate of growth; interviews with professionals and experts in the field ensured in-depth analyses of critical aspects related to site development; and personal observation was directed to the enumeration of population density, to the kinds of commercial establishments evident, and to the location of major traffic routes.

FINDINGS: The major findings, with pertinent comments, were presented as several sectional summaries. It was discovered that: 1) unless five year intervals are used, distortions appear in indices of growth such as electrical connections; 2) that the techniques utilized in educational planning can be enhanced by the science of demography--especially the cohort survival method; 3) it is possible and advantageous to use a random error factor, or the difference between a census count and the actual school enrollment; 4) simulated patterns of enrollment, including standard weights, were developed to show school enrollments to the year 1990; and 5) simulated site developments were portrayed indicating areas of future growth.

It was concluded that the technique of simulation provides educational planners with some valuable tools to cope with the phenomena associated with change.

APPROVED BY THESIS COMMITTEE, AUGUST 1973

James W. Anderson, Chairman

ELEMENTARY EDUCATION

A DISCRIMINATIVE STUDY OF MATHEMATICAL KNOWLEDGE AND METHODS OF TEACHING MATHEMATICS IN THE KINDERGARTENS OF ANOKA-HENNEPIN DISTRICT # 11

C. Elaine Burgess

PURPOSE OF THE STUDY: The purpose of the study is to make a comparison of the nature and extent of achievement of kindergarten children at the completion of the kindergarten year with the teaching approaches used.

SCOPE OF THE PROBLEM: The kindergartens of Anoka-Hennepin District # 11 use the incidental approach in the teaching of numbers. The curriculum office of this district regards incidental teaching as accidental, and therefore favors a structured approach. Experienced teachers of kindergarten feel that incidental teaching does not necessarily mean accidental. The kindergarten curriculum is overloaded with structured subjects and the teachers do not favor adding another structured subject.

PROCEDURE: A test of number knowledge was devised from a review of research studies and formal workbook programs, in order to determine the number concepts which professional curriculum writers felt a kindergarten program should include.

This test was administered to three kindergarten classes in the spring of 1970 to ferret out mistakes in wording of directions.

The writer discussed individually with each teacher involved in the study the method which that teacher would employ in the teaching of mathematics. Instructions for administering the tests were also given to each teacher individually.

Testing in the fall was begun before any numbers had been taught.

FINDINGS: A one-way analysis of variance was used in the computing of the F ratio.

Method One, the incidental approach to the teaching of mathematics, had a significant F ratio at the 5% level of 4.37. Method Five, which used the Big Book of Addison-Wesley Publishing Company had a significant F ratio at the 5% level of 4.55. Methods Two, Three, and Four were not significant at the 5% level.

CONCLUSIONS: Kindergarten entrants under Method Four scored the highest test scores on four of the strands. These same children as kindergarten graduates scored the lowest on these same four strands. It appears that an inexperienced teacher does have an effect on the amount of mathematical knowledge a child under her guidance learns.

Three strands showed the greatest mean variances. Each teacher had set various goals for her children to attain. The test shows indication that the children scored very closely to what the teacher expected of them. Teacher expectations seem to play an important part in pupil accomplishment.

The difference in F ratios between Method One and Method Five was .18. These two methods ranked either first or second in every part of the test at the end of the year. The combined efforts of these two methods should make an effective approach to the teaching of mathematics to kindergarten children.

Based on accomplishments by kindergarten graduates it appears that written exercises play an important part in the reinforcement of a mathematical concept as does grouping for ability instruction.

RECOMMENDATIONS: District # 11 should enlist the services of the teachers of Method One and Method Five to keep anecdotal records of lessons being taught during the remainder of the year. These lessons should be compiled into a written curriculum of mathematical concepts with added explicit directions on the manner in which these concepts are to be developed.

The District Guide for the Teaching of Mathematics should be rewritten to include grouping for ability procedures and the various levels of expectations for each group. In-service training should be given to each teacher either before the institution of the new curriculum or while it is being taught. Workbooks limited to the concepts of the numerals one through ten should not be purchased.

INQUIRY ORIENTED SCIENCE INSTRUCTION AS A GOAL IN THE TEACHING OF ELEMENTARY SCIENCE IN THE MOUNDS VIEW SCHOOL SYSTEM

Warren A. Emmons

Evaluating inquiry oriented science as a primary goal of an elementary science program encompassed four major areas. The purpose of the study was to: (1) evaluate the elementary school science textbooks and the new science programs used in Mounds View Schools, and examine the relationship of these materials to the criteria for inquiry oriented science instruction; (2) determine what methods teachers should use to develop facility in scientific skills and attitudes through the use of inquiry; (3) evaluate students' ability to cope with inquiry oriented science; and (4) evaluate the success of efforts to implement inquiry oriented science into the Mounds View Elementary Schools.

The literature revealed that the process skills of inquiry are being stressed more in the elementary schools today than in the past and most scholars agree that these skills are a desirable goal in elementary school science programs. How, when and to what degree the inquiry methods should be taught to students is not agreed upon, however the trend is to encourage a revision of science methods towards more inquiry techniques.

Criteria used in evaluating textbooks in relation to the new science programs used in the Mounds View Elementary Schools included a critique of four science units. These units were representative samples of Elementary Science Study units and textbook units. Opportunity for process skill development was shown to exist in both methods of instruction, however the Elementary Science Study units provided easier access to science materials that provide for process skill development through investigation and experimentation.

To determine the methods used by teachers to develop facility in scientific skills and attitudes through the use of inquiry, a survey checklist was developed and distributed to fourth, fifth and sixth grade teachers of science in School District # 621. The results indicated that opportunity for process skills of inquiry are not provided extensively for students in this age group.

A test was devised in which processes comprising scientific inquiry were included. The test was administered with a set of standardized directions to 717 fourth, fifth and sixth grade students.

Techniques used as a basis for drawing conclusions from the science process test were selected and applied. A test for reliability was completed by determining the coefficient of correlation between the number of correct responses of odd and even numbered questions. The Spearman-Brown prophecy formula for measuring reliability was then applied to the split halves technique of odd-even responses.

Six teachers examined the test and completed a rating scale for each of the five process skills included in the test for the purpose of establishing face validity.

To compare the test results of fourth, fifth and sixth grade students a frequency distribution, a cumulative frequency distribution, standard deviations and mean scores were determined for each grade level tested.

The procedures used to examine the test revealed a reliability coefficient of .84 and a favorable face validity. The test indicates that the three grade levels tested are able to successfully cope with the skills of identifying facts, inferences, observations, hypothesis and characteristics for classifying.

The differences in abilities of students at the three grade levels tested showed that sixth graders are more proficient than fifth graders, and that fifth graders are more proficient than fourth graders. The difference in the proficiency was not shown to be large.

To evaluate the science program that now exists in District # 621 to determine the extent to which inquiry science has been implemented in the elementary schools, a survey was devised. The survey was divided into ten categories, and each of them consisted of items pertaining to aspects of a science program that is desirable for implementing inquiry science instruction. Weaknesses were revealed indicating a need for reorganization and inservice training for teachers.

INDIVIDUALIZED STATION APPROACH TO READING VS. BASAL READER PROGRAM IN A FOURTH GRADE

Glenda Jewel Henry Masha

PROBLEM: The purpose of this study was to compare the achievements of the fourth grade students under the Individualized Station Approach to Reading during the school years 1970-1971 and 1971-1972 with the fourth grade students under the Basal Reader Program during the school year 1969-1970. This study was conducted at the Blaine Elementary School in Spring Lake Park, Minnesota, District 16.

PROCEDURE AND FINDINGS: The following tests were used to collect the data: (1) The Otis-Lennon Mental Ability test, (2) Houghton Mifflin Basic Reading Test for High Roads, (3) the Iowa Test for Basic Skills, and (4) the Metropolitan Achievement Test. A one-way analysis of variance was applied to the IQ scores. There was no significant difference between the three groups' IQ scores.

A t-test was applied to each individual test contained in the Houghton Mifflin Basic Reading Test for High Roads. The Comparison Group under the Basal Reader Program was compared to each of the experimental groups under the Individualized Station Approach. The two groups under the station approach were compared to each other. The three groups were compared on 24 different tests. There were significant differences in the reading achievements between the Comparison Group and the Experimental Group Two on 18 tests with the Experimental Group Two showing the larger gain in all of the tests. Looking at the two experimental groups, there were significant differences in the reading achievements between the Experimental Group One and the Experimental Group Two on 13 of the tests with Experimental Group Two showing the larger gains.

On the scores of the standard achievement test, a t-test of gain scores was applied. There were significant differences among most of the comparisons showing that there had been substantial growth in all the groups during the time of the study. Also, a t-ratio was applied to the grade equivalents in the verbal and reading skills which were taken during the fall of their fifth grade year. In comparing the three groups to one another on the standard achievement test, there were no significant differences in their scores.

CONCLUSION: From the results obtained in this study, the two experimental groups (1970-1971 and 1971-1972) showed significant differences in many areas that were studied when compared with the Comparison Group (1969-1970). The author concluded that the Individualized Station Approach to Reading as defined in this study was a better method to teach reading than the Basal Reader Program.

APPROVED BY THESIS COMMITTEE, MAY 1973

Russell H. Schmidt, Chairman

A DESCRIPTIVE DEATH AND DYING RESOURCE UNIT FOR GRADES 5, 6, 7, OR 8 PUBLIC SCHOOL STUDY: ITS RATIONALE, CONCERNS, AND DEVELOPMENT

Duane Einar Nelson

This thesis, which proposes a resource unit for death and dying education, has several manifest purposes:

1. To establish general and specific guidelines for a formally structured study of death and dying by elementary children.
2. To invite progressive schools upon adventures with death and dying education; wherein and what would be its effectiveness?

The review of literature surveyed applicable background information (philosophical and practical concepts) as proposed and/or researched by child educators, medical doctors, psychologists, nurses and religious representatives. A preponderance of their evidences relates that children today and previously have/had interest coupled with inherent needs for death and dying education. The literature further portrayed young people as being ill-equipped emotion-

ally for death and dying, having been guided inadvertently by family, friends, entertainment and news media, teachers, *et al.* sources.

The Death and Dying Resource Unit has outlined areas of importance through its development. A basic understanding of death and dying (relevant to emotional and intellectual maturities) is definitely significant in the *complete* education of children. Behavioral objectives are stated which relate the self-adjustments and understandings hopefully to be accomplished by children. Many issues, problems and questions have been proposed to encourage and focus young people's thinking upon the topic of death and dying. An inventory is represented of possible activities (with implied techniques) to initiate, develop and conclude a death and dying unit of study. Several suggestions indicated for evaluation of the Death and Dying Resource Unit would be to determine the effectiveness and value through its contemplative study in either grade 5, 6, 7, or 8. Then major safeguard considerations identified are acknowledgments that an organized study of death and dying in the elementary public schools is potentially controversial.

During the elementary school years children have multiple interests and needs. Children want to learn about themselves, the physical world and their social environments. Few students graduate "automatically" from schools with the personality characteristics of honesty, self-responsibility, common sense, and the discipline of emotions. Therefore, children require personal experiences regarding death and dying, with adult guidance, to manage themselves, their behaviors, and especially their feelings. However, if pupils learn about death and, similarly, sex haphazardly, adults concerned and involved with education should realize the consequences.

For adults and children a philosophy of life which denies and ignores an understanding of death becomes inadequate. Elementary schools by offering death education would counsel young people for daily living in using their emotional faculties to manage adversity, however encountered. Educators everywhere are encouraged to participate in the challenges and opportunities available with a rational approach toward death and dying education for children of intermediate ages.

APPROVED BY THESIS COMMITTEE, JULY 1973

Louis J. Karakas, Chairman

A SURVEY OF ELEMENTARY SCHOOL ENVIRONMENTAL EDUCATION IN THE MINNEAPOLIS AND SAINT PAUL SUBURBS

Stephen Maurice Saunders

The purpose of this study was to determine the amount and kind of environmental education being offered to the intermediate aged children in a sampling of suburban elementary schools in the Twin City suburban area. The hypothesis of the study was that a majority of the suburban schools taught environmental education but that this was done in a haphazard, nonsequential manner.

The principals of a random sample of elementary school in each of the twenty-nine Minneapolis-Saint Paul suburban school districts included in the study was surveyed by means of a mailed questionnaire. The data was collected in the fall of 1971 concerning the 1971-1972 school year.

The majority of the principals surveyed reported that environmental education was being taught at the intermediate grade level. The data shows that 78.4 percent of the intermediate grades were teaching environmental education. One of the twenty-eight school districts completing the survey had a kindergarten through twelfth grade curriculum in environmental education and one district had a kindergarten through sixth grade curriculum. About one-third (32.2 percent) of the teachers in the study had been trained in environmental education. Over half of the grade levels surveyed used prepared units in environmental education and sixty percent of them took environmental field trips.

CONCLUSIONS: There is a great deal of environmental education being taught in the Twin City suburbs, but it is not being taught in a sequentially structured program. There is little difference between the fourth, fifth or sixth grades in the amount of environmental education being taught. Training of teachers seems to be an important factor in increasing the amount of environmental education being taught.

APPROVED BY THESIS COMMITTEE, JULY 1972

Russell H. Schmidt, Chairman

THE COLD SPRING INDIVIDUALIZED MATHEMATICS PROGRAM FOR GRADES FIVE AND SIX

Rita M.W. Stuckel

PROBLEM: It is the purpose of this study to give a descriptive case study of the individualized mathematics program for grades five and six, which was devised for the Cold Spring Public Elementary School, and to report the evaluation of its progress after four years of operation.

PROCEDURE: The basal text method of approach was used in preparing the program. An assessment of student needs in mathematics was made. The needed skills were divided into units. Behavioral objectives were prepared to cover each unit. Contracts to help the student attain the objectives were written. Criterion referenced tests to measure student achievement of the objectives were prepared.

An analysis and comparison was made of the test scores of the mathematics section of The Iowa Tests of Basic Skills, administered in 1971, 1972, and 1973.

Detailed records were kept of the contracts completed and the proficiency level attained by each student on the criterion referenced tests.

A survey of junior high teachers was conducted to determine how students rated as to independence in work habits. Yearly student polls were taken to ascertain student reaction to individualized instruction. A questionnaire was sent to the parents of 138 students to obtain parental reactions to the program.

FINDINGS: By significant test it was determined that more children were working at grade level and above in 1973 than in 1971 or 1972. The 1973 test mean national percentile for grade five was 66.30%, for grade six 59.97%. Overall growth in mathematics skills in a two-year period showed, on the average, low ability students gained 19.92 months, average ability students gained 19.24 months, and high ability students gained 21.74 months.

The criterion referenced tests showed at least 80% of the students reached the required proficiency level on the first try with boys rating higher than girls. The second year in the program produced more significant growth. Junior high teachers indicated the students from the program are exhibiting independence. Results of the student polls and the parental questionnaire revealed that both students and parents approve of the program.

CONCLUSIONS: The individualized mathematics program was judged to be successful. The standardized test used indicated success. The criterion referenced tests showed the students performed well. The student and parent reaction to the program was highly positive.

The writer concludes that the experience of preparing and implementing a program of this nature makes a teacher more aware of how learning takes place, therefore a more effective and efficient teacher.

APPROVED BY THESIS COMMITTEE, AUGUST 1973

Russell H. Schmidt, Chairman

EVALUATING CRITICAL THINKING AS A PRIMARY GOAL IN THE TEACHING OF ELEMENTARY SOCIAL STUDIES IN THE MOUNDS VIEW SCHOOL SYSTEM

Ronald George Sweeley

Evaluating critical thinking as a primary goal of an elementary social studies program encompassed four major areas. The purpose of the study was to: (1) determine the validity of critical thinking as an attainable goal by investigating the literature, (2) see if critical thinking can be taught by the use of one textbook, (3) determine if supplementary materials are used, and (4) evaluate sixth grade children's critical thinking ability by using a teacher-prepared test.

The literature indicated that critical thinking skills must be considered as a goal of social studies instruction. An adequate background of the thinking stages, an organized sequence of thinking tools, a consciousness of available materials, coupled with a positive class-

room atmosphere and use of appropriate questions are necessary for instruction.

Criteria used in evaluating textbooks in relation to critical thinking skills included a critique of four social studies texts.

1. Was critical thinking stated as a goal and was a sequence of steps included for teaching each facet of critical thinking?
2. Did the authors' questions meet the criteria which were set up in Taba's model of cognitive tasks, the Inter-College Committee's definition of inferences?
3. Did the sequence of the authors' questions allow for a child's experiences first?

Exposure of the critical thinking skills was presented in the texts, but reinforcement of those skills was lacking. A procedure in the presentation of a skill was generally lacking except when problem solving was an objective. Questions were presented in all the texts, but a problem resulted, because the questions did not allow the child to use his first-hand experiences before tackling a question involving an unfamiliar setting. Evaluations were indicated in the form of checklists, anecdotal records and objective testing. Checklists and anecdotal records were limited, because of the time factor required for individual evaluations. Generally the tests did not measure the critical thinking objective listed as a goal in the text.

Supplementary materials used by the teachers of the children tested were inventoried. Types of supplementary sources were checked in conjunction with the teacher's identification of each skill with the kind of resource used.

The resource inventory revealed that social studies basal and supplementary texts were employed along with nonfiction library books, films, newspapers, and maps and globes. Primary sources were seldom used. The inventory was limited, because the degree to which each source was used in developing each facet of critical thinking was not a part of the inventory.

A multiple-choice, teacher-prepared test was developed: (1) to use as a classroom measurement, and (2) to use as a standardized instrument for predicting sixth grade children's achievement in their use of the critical thinking skills. The test was administered with a set of standardized directions to 442 children.

A mean of 13.9 with a variance of 22.6 and a standard deviation of 4.8 indicated a central tendency of the test to approximate a normal curve. A reliability coefficient of .562 was established with a confidence interval significant at the .05 level. This pilot study warrants further testing and research.

An item analysis was conducted to improve the reliability of the test. Poor and marginal items (six of the thirty) were revised. Some of the test distractors indicated that they were either too plausible or too difficult. Also the distractors tested a child's conciseness in reading and not just the skill it was intended to measure, along with one response preying on a child's preconception of the item's content. A fifth difficulty involved repetitive wording in the response.

APPROVED BY THESIS COMMITTEE, JUNE 1972

James W. Anderson, Chairman

HEALTH, PHYSICAL EDUCATION AND RECREATION

THE USE OF ANTHROPOMETRIC AND SKINFOLD MEASUREMENTS IN PREDICTING MINIMAL WEIGHTS OF HIGH SCHOOL WRESTLERS

Michael D. Bah

Forty-three high school wrestlers between the ages of fourteen and eighteen years, from the St. Cloud area, were measured for seven body diameters and six skinfold measurements. The seven body diameters were: height, chest width, chest depth, bi-iliac width, bitrochanteric width, wrist diameters, and ankle diameters. The six skinfolds that were taken were at the following body sites: subscapular, tricep, chest, abdomen, supra-iliac, and thigh. The body diameters were substituted into a formula, developed by Tchong and Tipton in Iowa, to predict the minimal weight at which each wrestler should compete. The six skinfolds were substituted into a formula, also developed by Tchong and Tipton, to predict the percent body fat. The body diameters were taken twice, the first week of practice and again half-way through the wrestling season. The skinfold measurements were taken four times: the first week of the season, half-way through the season, the week prior to tournaments, and a month after the season. The results of these measurements were compared to results obtained by the following

investigations from four other geographical areas: Clarke in southern Minnesota, Sinning at Springfield, Massachusetts, Katch and Michael in southern California, and Tcheng and Tipton in Iowa.

The following hypotheses were investigated: (1) that St. Cloud area wrestlers' measurements were no different than those of wrestlers from other geographic areas, (2) that the medically certified weight was no different than the actual wrestling weight, (3) that the predicted weight was no different than the medically certified weight and (4) that the actual weight was no different than the predicted weight. Comparison for total groups were made using the *t*-ratio test. None of the hypotheses were significantly different at the .05 level of confidence. However, when examining individual wrestlers and their predicted, certified and actual weights large differences were found in some cases. It was concluded that the Tcheng-Tipton method for predicting minimal wrestling weights should be used as a guide for finding the minimal wrestling weight, but should not be used as the sole criteria.

APPROVED BY THESIS COMMITTEE, JULY 1973

George Serdula, Chairman

A SURVEY OF EMPLOYEE INTEREST IN INDUSTRIAL RECREATION AT STEARNS MANUFACTURING COMPANY, SAUK RAPIDS, MINNESOTA

Donald A. Bergman

The purpose of this study was to determine whether employee interest was substantial to warrant the development of an industrial recreation program at the Stearns Manufacturing Company, Sauk Rapids, Minnesota, and to gain information related to employee desires and attitudes regarding such a program.

A census study, in the form of a questionnaire, was conducted and the results were obtained from 241 (fifty-eight percent) of 412 possible questionnaire returns. Chi square tests were used to determine significant differences in answers given by employees with regard to the following hypotheses: (1) there is no significant difference between married employees and single employees in interest expressed concerning the organization of an industrial recreation program, (2) there is no significant difference between employees of varying age groups concerning interest in the organization of an industrial recreation program, (3) there is no significant difference between employee interest and number of children concerning the organization of an industrial recreation program.

A significant difference was discovered for the second hypothesis only, at the .05 level of confidence. Actual number tabulations or percentages were made for all questionnaire responses. It was concluded that substantial interest did exist for the development of a plant recreation program. Employee desires and attitudes toward such aspects of a recreation program as management, finance, scheduling, and activities were also obtained from the study. A joint company and employee method of management and finance were desired by the employees. Evenings and weekends were selected as the best times to schedule plant activities, and the leading activities chosen were bowling, swimming, volleyball, arts-crafts, and picnic-camping.

APPROVED BY THESIS COMMITTEE, JUNE 1974

Robert G. Waxlax, Chairman

A COMPARATIVE STUDY DESIGNED TO MEASURE THE SELF EVALUATED PERSONALITIES OF HIGH SCHOOL FOOTBALL COACHES AND THEIR PERCEPTIONS OF THE IDEAL FOOTBALL COACH'S PERSONALITY

Gary M. Buer

GENERAL PROBLEM: The general problem was to determine what relationships existed through an individual-to-group profile similarity coefficient, between an individual football

coach's test scores, as determined by Cattell's 16 Personality Factor Questionnaire, and selected football coaches' perceptions of the "ideal" football coach's personality profile.

LIMITATIONS: This study was limited to fifty high school football coaches from the public schools in Minnesota. For the purpose of this study the Cattell 16 Personality Factor Questionnaire was used by the football coaches to measure their personality traits. The coaches also used Cattell's 16 Personality Factor Profile (Coaches Rating Scale) to measure the traits of the "ideal" high school football coach.

PROCEDURES: Data for this study were gathered from fifty selected high school football coaches in Minnesota during March, 1973. After the study was approved, a contact letter was sent to each coach thoroughly explaining the study. Each coach was given a copy of Cattell's 16 Personality Factor Profile (Coaches Rating Scale) and was asked to assess the personality traits of the "ideal" high school football coach. Cattell's 16 Personality Factor Questionnaire was then administered to the fifty coaches to evaluate their personality traits.

TREATMENT OF DATA: The data on the 16 Personality Factor Questionnaire were hand scored as directed in Cattell's Handbook for the 16 Personality Factors. The coaches received a raw score on each personality dimension which was then converted into a standard ten score, based on norms for males over twenty years of age. From this a personality profile for each coach was formulated, based on a one to ten rating scale for each trait. Raw scores from the Coaches Rating Scale were converted into mean scores for each of the perceived coaches personality profile.

The profile similarity coefficient (r_p) was used to determine correlations between the personality trait scores on the 16 Personality Factor Questionnaire and the Coaches Rating Scale. After calculation of r_p , significance was then determined by Horn's Table (Appendix 2, Cattell, et al., 1970, p. 306). Acceptance for significance was set at the .05 level of confidence.

FINDINGS: The results of this study revealed that a significant correlation did not exist between individual coaches' test scores and the perceptions of the selected coaching group's "ideal" coach's personality profile. Nor did a significant correlation exist between individual coach's test scores and their perceptions of the "ideal" coach's personality profile.

Years of coaching experience and the career won-lost record were not significant factors in the coach's ability to perceive the "ideal" coach's personality profile.

APPROVED BY THESIS COMMITTEE, MARCH 1974

Robert Waxlax, Chairman

THE EFFECTIVENESS OF SOCIODRAMA AS A TOOL IN DRUG EDUCATION

Glenn D. Donnay

PROBLEM: The purpose of this study was to develop a sociodrama which could be used as a tool in drug education, portray accurately the local drug scene, be presented by former users, and be proven effective when subjected to analysis.

PROCEDURES: The sociodrama was developed through a series of scenes in each of which a central theme was developed by the cast members in accordance with their individual personal experiences. Additional revisions were made after the initial performance.

A questionnaire was developed to measure selected attitudinal changes. Items proving non-discriminatory were replaced after the first administration. A five-point Likert scale was adopted since responses could easily be recorded on an IBM 1230 answer sheet. The investigator personally delivered all materials to the designated school authority who was requested to follow standardized procedures in administering the pre- and post-tests.

The sociodrama was presented at six sites during the winter and spring quarters, 1972, to Central Minnesota elementary, junior high, and senior high school students, resulting in a total sample of 1,315 respondents. Their responses were statistically analyzed using a two-tailed t-test to determine the significance of the differences between the pre- and post-test means obtained for each item.

FINDINGS: Statistical significance was obtained for fifteen of the twenty items administered

to the total group. The responses to thirteen of these items showed a shift toward the desired outcome, while those for the other two were reversed. When the total group was subdivided on the basis of age and location, further evidence was obtained to substantiate the effectiveness of the sociodrama, but comparisons within the study could not be made due to variation in the subgroup sample size. Significance was determined at the .05 level of confidence.

The following factors may have affected the results: credibility of the cast; ego-involvement on the part of the audience; controversial nature of the play; prior knowledge among the audience; and the time allotted for each performance. These factors were in agreement with previously completed studies. While the total sample was large, it was inferred that another factor, namely the sociodrama, was necessary to obtain fifteen significant items. No attempt was made to measure the therapeutic benefit to individual cast members, although this was noted.

CONCLUSIONS: Based upon the findings, it was concluded that the sociodrama developed in this study, was an effective means of drug education for the total sample.

APPROVED BY THESIS COMMITTEE, AUGUST 1972

Cameron Thompson, Chairman

A CURRICULUM INFORMATION AND DEVELOPMENT STUDY FOR SEVENTH AND NINTH GRADE STUDENTS IN SMOKING EDUCATION

Robert W. Wandberg

PROBLEM: The problem of this study was to determine the smoking characteristics of the seventh and ninth grade students enrolled in the Bloomington Public Schools of Minnesota in regard to their personal smoking patterns, the smoking patterns of their parents, the knowledge they possess on the effects of smoking and various attitudes and opinions held by these students.

PROCEDURES: The 2,930 subjects were tested with a forty-two item questionnaire during regularly scheduled science and health education classes. Students were able to complete the questionnaire at their own rate which was normally about thirty minutes.

The student was required to identify himself only in regard to grade, school, and sex. No names or other identifying marks were required.

Answer cards were then statistically analyzed by TIES Computer Service. The answer cards were first analyzed separately according to each grade and sex--then as a total group.

FINDINGS:

1. In grade seven eleven percent of the students smoke.
2. In grade nine, 23 percent of the students smoke.
3. Girls--in both grades seven and nine have a higher incidence of smoking than the boys--especially at grade nine where 28 percent smoke.
4. Fathers of 47 percent of the tested students smoke.
5. Mothers of 35 percent of the tested students smoke.
6. Seventh grade students were lower in knowledge concerning the effects of smoking than the ninth grade students.
7. Smoking students were lower in knowledge concerning the effects of smoking than the non-smoking students.
8. Most (84 percent) students believe teenagers start smoking because their friends and associates smoke.
9. Most (82 percent) students agreed with the statement, "When I have children I hope that they never smoke."

RECOMMENDATIONS: It is recommended. . .

1. that more emphasis be placed in smoking education before grade seven.
2. that smoking education programs exist in grades seven, eight, and nine.
3. that education regarding the female (teenage) smoking characteristics should be emphasized especially and specifically before grade nine.
4. that education regarding parental influence in association with cigarette smoking be presented.

5. that education regarding psychological dependence be included—possibly emphasized.
6. that education regarding peer pressures associated with cigarette smoking be included in the program.
7. that the health educator directly presenting the smoking and tobacco program to the students be a non-smoker.

APPROVED BY THESIS COMMITTEE, DECEMBER 1973

Chet Buckley, Chairman

INFORMATION MEDIA

A SURVEY OF PAPERBACK USAGE IN MINNESOTA PUBLIC SCHOOLS

Robin J. Crumb

PROBLEM: The intent of this study was (1) to determine the extent of paperback usage in Minnesota; (2) to study acquisition, cataloguing and processing methods for paperbacks; and (3) to compare paperback usage in different types of public schools.

PROCEDURES: Two hundred questionnaires were distributed to building level media personnel throughout the state. Those responding to the questionnaire were asked to check all applicable answers. The returned questionnaires were charted in all categories that applied.

FINDINGS: One hundred and seventy-three questionnaires were returned. The survey indicated that many schools are combining audio-visual and library services. The results also showed that most schools are now using paperbacks throughout the building including the media center. Answers to questions regarding acquisitions, processing, storage, cataloguing and circulation indicated that a wide range of ideas and methods are being used in the public schools. Personal comments and experiences also revealed some interesting methods for using paperbacks.

SUMMARY AND CONCLUSIONS: The results of this survey were not necessarily surprising; however, the study does serve as a type of evaluative instrument in determining what has already been done with paperbacks throughout the state. This information could be used to establish more concrete guidelines for usage of paperback materials.

APPROVED BY FIELD STUDY COMMITTEE, AUGUST 1973

Lawrence B. Smelser, Chairman

A NON-TECHNICAL GUIDE TO THE PRODUCTION OF SOUND SLIDE SETS

Charles L. Droubie

It is the author's contention that audiovisual materials prepared commercially for a wide range of audiences cannot be as effective in meeting specific learning objectives as materials designed for those objectives.

This non-technical guide to the production of sound slide sets is a 178 visual sound slide series which collects from many sources the most important components of sound slide set production. These are simplified to the point where success can be appreciated without vast expenditures of time and money. The need for such a guide is reinforced by research which indicates that simple, well-planned local productions can be as effective as commercial presentations.

The production is characterized by simple, relevant hints which can be the founda-

tion for further successful experimentation by the user. The aim is to dispell the educator's fear of proceeding with such a production and replace it with a workable background in sound slide set production skills.

APPROVED BY FIELD STUDY COMMITTEE, AUGUST 1973

Lawrence B. Smelser, Chairman

HISTORY, ORGANIZATION AND ADMINISTRATIVE STRUCTURE OF LEARNING RESOURCES SERVICES AND DEPARTMENT OF LIBRARY AND AUDIOVISUAL EDUCATION OF ST. CLOUD STATE COLLEGE

C. Robert Jaspersen

PROBLEM: The problem for this study was to depict the history of Learning Resources Services and to provide a description of the philosophy, administrative structure and operational guidelines that make Learning Resources Services and The Department of Library and Audiovisual Education in the School of Education at St. Cloud State College unique. The purpose of the study was to disclose how the "total media concept" was conceived, developed and made an integral part of the educational process at St. Cloud State College. This study was made to show one way the "total media concept" was implemented at the college level, not the only way. No attempt was made to evaluate the model described here.

PROCEDURE: The design for this field study was to explore and investigate the history, function, and possible future programs of Learning Resources Services and The Department of Library and Audiovisual Education. The approach to the subject was heuristic in nature and no effort was made to prove any specific hypothesis. Research procedures depended on the form of the data available. Published and unpublished. Printed materials took the form of reports, books, catalogues, bulletins, and periodicals. In order to provide personal, subjective and unprinted information about Learning Resources Services and The Department of Library and Audiovisual Education personal, tape recorded, interviews were conducted with various people across campus who could furnish any information that would fill in the gaps in this historical development.

FINDINGS: St. Cloud Normal School opened in September, 1869 as the third Minnesota State Normal School. Over the years the emphasis of the school was changed from primarily teacher training to a multi-purpose institution offering undergraduate and graduate programs of study in the School of Business, School of Education, School of Fine Arts, School of Industry, School of Liberal Arts and Sciences, and the Graduate School. The growth and change of the library into a Learning Resources Center took place at a rapid rate also in order to keep pace with the rapidly growing and changing College. It is stated in the philosophy that Learning Resources Services is organized to include all instructional resources used in support of teaching and learning at St. Cloud State College. The organizational framework of Learning Resources Services is built upon a line and staff relationship. The general categories of personnel within that framework are Dean of Learning Resources Services, Assistant Deans, Division Supervisors, Section Leader and Section Personnel. The fact that everyone on the staff is expected to teach as well as have a responsibility in a Service Area is unique to St. Cloud State College Learning Resources Services. This has made the staff much stronger and more flexible in many ways.

CONCLUSIONS: In one of the first courses a student takes upon entering the Information Media Program in the Department of Library and Audiovisual Education in the School of Education it is stressed heavily that "People in Media must be *willing* to change." This becomes very apparent when looking into the future of education in general and Learning Resources Services in particular. It has been said that, "Young people are getting conditioned to communication of a non-linear variety and if we in education are going to compete for their learning attention we are going to have to adapt to and adopt such a program."

APPROVED BY FIELD STUDY COMMITTEE, AUGUST 1973

Lawrence B. Smelser, Chairman

AN INSTRUCTIONAL PROGRAM FOR THE DESIGN, IMPLEMENTATION, MAINTENANCE, AND EVALUATION OF A MEDIA PROGRAM IN GRADES K-9

Jack R. Loss

PROBLEM: When organizing a media program within a school or district, there must be a means of assisting teachers in directing students through a program which will provide them with an opportunity to explore and become involved in the new learning alternatives.

It is the problem of this study (1) to examine the literature related to media program organization and associated student benefits, (2) to determine the role of teachers and media staff in initiating suitable systems for directing students in acquiring media resource skills, and (3) to provide an illustrative model from which schools might initiate and maintain a student-directed instructional system for acquiring skills needed to use media effectively.

PROCEDURE: The method of organization of information and findings is based upon a review of current literature and observations in areas related to media program development, independent study techniques, and approaches to curriculum development and organization. Using the information from these resources, an effort has been made to distinguish, outline, organize, and discuss the various elements of media curriculum planning for the grades K-9.

A model program design for implementation of a media curriculum is presented to serve as a guide to future unit methods and is based upon an existing school program from a neighboring school district. The difference is noted in the utilization of an audio-tutorial teaching technique which is used as the primary method of student instruction in the suggested model.

FINDINGS: In an attempt to organize a framework of operation for any new program, consideration must always be given to how it may affect or support other learning units and the established objectives. There is need to evaluate existing situations and to identify priorities dependent upon the environment and educational goals of the school.

The organization of systematic methods of learning per se are not an answer to all learning problems or a substitute for the personal direction of qualified teachers. However, they may offer some relief to limited staff problems and also free teachers from drill type tasks or informational routines that can be accomplished independently by the students.

SUMMARY AND CONCLUSIONS: The development of a media instruction design model is primary to the total media resource program effort. The design and eventual application of such a program will find its final test in the degree of media competencies gained by the children involved and how they are able to make application to a variety of learning disciplines utilizing multiple resource materials.

APPROVED BY FIELD STUDY COMMITTEE, JUNE 1973

Lawrence B. Smelser, Chairman

A COMMUNITY MODEL FOR THE EDUCATIONAL USE OF CABLE TELEVISION IN ST. CLOUD, MINNESOTA

Duane L. Radeke

PROBLEM: Because of community and outside interest in cable television this study describes a workable, existing system, its development, impact on the schools and community, and future projections of implementation to make cable television a more integral part of the school and community.

PROCEDURE: This model was developed through search of the literature, information from authorities in the field, and experience gained over a period of three years.

1. The first phase of the study describes educational needs of the schools within the community, vending of educational services, and the cooperation and planning that should exist between the schools and cable companies.

2. The second phase of the study describes the present cable facilities in St. Cloud, the local programming that is presently available over CATV in the community, and the evaluation of its impact on the educational program and community viewers.
3. The third phase explores television expertise within the community, media available for CATV programming, and community resources necessary for outstanding local programming.
4. The fourth phase explores the need for inter-agency cooperation within the community and model specifications for future development of programming and technical capability necessary to make CATV a more integral part of the schools and community.

SUMMARY: A realistic approach of implementation was described to solve the following problems:

1. How did cable television become a part of the schools and community?
2. Why is cable television an important aspect in the educational program?
3. What type of negotiations and cooperation should exist between educational institutions and the cable company?
4. What type of evaluation is necessary to justify educational involvement in cable television?
5. What type of expertise and materials are available for local programming?
6. How does a school district capitalize on the use of community resources for local programming?
7. How does inter-agency cooperation enhance the impact of cable television within a community?
8. What kind of agencies within a community might find cable television a useful communication tool?
9. What kind of local programming is possible for a school district involved with cable television?

CONCLUSIONS: Cable television will play an important role in educational communications, especially in larger school districts. Educators must get involved in plans for utilization of this growing technology. Too often educators have struggled for access to cable channels without systematic planning to meet the educational needs of the community. Involvement is a gradual process, however, the potential of cable television must be realized by teachers and administrators.

APPROVED BY FIELD STUDY COMMITTEE, MAY 1973

Lawrence B. Smelser, Chairman

PSYCHOLOGY

A CORRELATIONAL ANALYSIS BETWEEN ACADEMIC INTELLECTUAL CURIOSITY AND GPA'S (GRADE POINT AVERAGES)

Paul M. Buenger

ABSTRACT: A questionnaire was designed to measure academic intellectual curiosity. Academic intellectual curiosity is the tendency for a person under conditions of leisure, or leisure time to choose from among an array of stimuli the stimulus (or stimuli) most likely to contain higher amounts of academic information. It was expected that a significant correlation could be obtained between scores on the questionnaire and respective GPA's (grade point averages) of students administered the questionnaire. For control purposes, the project was designed to denote an experimental effect.

Academic intellectual curiosity approximates D. Berlyne's notion of epistemic curiosity. A comprehensive review of the knowledge available concerning curiosity or aspects of curiosity is presented by Berlyne in his book, Conflict, Arousal and Curiosity.

The questionnaire was comprised of forty questions using a numerical forced-choice scale. Weights were assigned to each question allowing the subject to score three, one, or zero points except where only two choices were available (here either one point or zero was scored). The maximum possible score was 164 while the minimum was zero. The choices available for

each question varied from two to five.

Five classes at St. Cloud State College were selected as representative of the student body. Classes were chosen from all five schools within the college. Members of the classes were administered the questionnaire. A total number of 180 scores were utilized. One hundred one subjects were taken from classes in which students were released fictitious information on how academic intellectual curiosity was shown to be a trait possessed by people of high IQ who could grasp complex materials easier than those who possessed little or no academic intellectual curiosity. A group of seventy-nine subjects were informed about the virtues of study habits prior to presentation of the questionnaire. A test-retest reliability coefficient of .83 was obtained on a separate sample of twenty-seven students.

An F-ratio between the two groups indicated samples whose population variances were homogeneous. A T-score between the two groups (the 101 and 79) indicated no significant difference between the means. The correlations obtained between the scores on the questionnaire and the respective GPA's (grade point averages) of the students were consistently low. Hence, it was concluded that the questionnaire in its present form could not be used as a predictor of college grades.

The next step involved if further work on the project were to continue, would be to acquire a standardized instrument measuring some aspect of curiosity. Concurrent validity between the questionnaire and the instrument could be established. Although the questionnaire purports to measure academic intellectual curiosity, empirical data to vindicate this is lacking.

APPROVED BY THESIS COMMITTEE, JULY 1971

M.E. Van Nostrand, Chairman

THE GENERALIZATION OF FEAR REDUCTION FOLLOWING SYSTEMATIC DESENSITIZATION OF RAT PHOBIAS

Ronald W. Sherman

The present study was designed to investigate if systematic desensitization of a specific feared object (i.e. 426 gram white rat) had any effect on fear reduction with similar objects (other rats and mice) not dealt with in treatment. Students who reported "terror" or "very much fear" to rats and mice on the Fear Survey Schedule II were asked to participate in the study. Sixteen female students were ultimately selected as Ss on the basis of their responses on the Phobic Test Apparatus (PTA) and the Fear Thermometer (FT). Eight Ss in the treatment group were then given desensitization to a specific feared object (i.e. 426 gram white rat). This involved two sessions of relaxation training, one session of visualization training, and eight sessions of a standard schedule of desensitization (Nawis 1970). Desensitization was continued until each S had completed the 16-item rat hierarchy. Following the last desensitization session, the treatment Ss were again tested on the PTA and the FT. At this time, the eight control Ss were called in and tested on the same measures. One month later, a follow-up was completed and both the treatment and control Ss were retested.

The results showed significant reductions in post-tests PTA and FT scores for the treatment Ss with respect to rats and mice. Thus, the generalization hypothesis was confirmed.

APPROVED BY THESIS COMMITTEE, MARCH 1972

Charles J. Boltuck, Chairman

CLIENT-CENTERED GROUP COUNSELING COMPARED WITH BEHAVIOR MODIFICATION IN CHANGING INAPPROPRIATE BEHAVIOR OF ELEMEN- TARY SCHOOL CHILDREN

Lenore S. Subotnik

Forty-six elementary school children identified by their teachers as exhibiting problem behavior were divided into two experimental groups and one control group to study the effectiveness of two different counselor roles. In one experimental group, the experimenter acted as a client-centered group counselor with the children. In the other, she was a consultant to the teachers of the subjects, teaching them behavior modification. Changes in the subjects were measured by independent observers visiting the classrooms, yielding an inappropriate behavior score, and

by a sociometric test, yielding a reputation score. Trends on the observation data were toward more improvement of the Counseling group than the Consulting or Control groups. Statistically significant differences were found on the sociometric data, in opposite direction to the trends of the observation data. The Counseling group's reputation scores decreased in comparison to the Control group and the Consulting group. The Consulting group showed a trend toward improvement when compared with the Control group. The suggestion was offered that negative reactions from classmates occurred when students were removed from the classroom for counseling, and that positive reactions occurred when teachers used positive reinforcement in the classroom.

APPROVED BY THESIS COMMITTEE, DECEMBER 1971

Derwyn L. Anderson, Chairman

A STUDY OF THE RELATIONSHIP BETWEEN ROSENZWEIG PICTURE-FRUSTRATION STUDY AND AGGRESSION

Richard L. Theisen

The present experiment was a study of the relationship between the extrapunitive dimension of the Rosenzweig Picture-Frustration Study (P-F) and aggressive behavior as measured by the subjects' (Ss) shock intensity selections.

Subjects were divided into a low aggression (LA) group and a high aggression (HA) group on the basis of their extrapunitive (E) scores on the P-F.

The Ss were told that they were taking part in an experiment to study the effect of punishment on memory. Their tasks, they were told, was to give shocks to another S, in an adjacent room, who was trying to memorize a word list. The Ss were instructed to give one shock every ten seconds until a total of ten shocks were given, to try to interfere with the memorization of the word list.

No shocks were actually given and there were no memory group Ss. Each time the S pressed a switch, one of six lights on a display panel in the next room was lit. The lights were numbered to correspond to the numbers of the switches. An observer recorded the shock intensity selections as indicated by the lights.

The number assigned to each switch was used to measure shock intensity selection, with "1" indicating the weakest intensity and "6" indicating the strongest. The median shock value for each S was used in the analysis of the data.

No significant difference was found between the LA and HA groups in the expression of aggression. Also, no sex differences in shock intensity selection were observed.

Based on the concordance of the results between the present study and other similar experiments, it is suggested that there is not a significant relationship between the P-F and experimentally observed aggression.

APPROVED BY THESIS COMMITTEE, JUNE 1972

Charles J. Boltuck, Chairman

READING SPECIALIST

AN INVESTIGATION OF VIDEO TAPED EXPERIENCES AS AN EXPERIMENTAL METHOD OF READING INSTRUCTION

Florence Borman

The purpose of this study was to determine whether a reading program in which students video taped their own creative activities produced more desirable results than an existing program in which students worked individually on comprehension, word recognition, spelling, and study skills. Null hypotheses tested three variables: reading achievement, self-concept, and attitude toward school.

The sample consisted of twenty pupils selected by computer scheduling from a population of thirty eighth graders, all of whom had scored a grade level of 7.1 or below in the com-

prehension subtest of the Gates-MacGinitie Reading Tests administered the preceding spring. The experimental group participated in a special program of video taped activities: role-playing pantomime, choral reading, drama, and story-telling. The control group continued in the existing individualized reading program. The study was conducted over an eight-month period.

Three instruments were administered as pretests and posttests: the Gates-MacGinitie Reading Tests, Form E; the California Test of Personality, Intermediate Series; and a locally-developed Personality and Behavior Rating Scale. There were no significant differences in mean self-concept gains nor in mean changes of school attitudes. The Gates test revealed a significant difference at the .01 level of confidence in mean comprehension gain in favor of the control group, but no significant differences in mean growth of speed and accuracy or vocabulary.

The following conclusions were stated:

1. A reading program based on video taped creative activities has no higher probability of producing improved self-concepts and attitudes toward school than does an individualized, skills-centered program.
2. Students in an individualized, skills-centered program are more likely to demonstrate comprehension gains than students in a program utilizing video taped creative experiences.
3. Students who video tape their own activities will demonstrate more enthusiasm for their class than those involved in skills work, but this enthusiasm should not be interpreted as a sense of achievement nor as an indication that these students are reaping more benefits.
4. Activities using video tape and drama may offer welcome variety to a practice-centered program.

APPROVED BY THESIS COMMITTEE, JULY 1973

Roger L. Rouch, Chairman

A STUDY OF THE DEVELOPMENT OF CRITICAL READING ABILITIES IN SEVENTH AND EIGHT GRADE STUDENTS

Marie Walsh Esser

The experiment was conducted to investigate the development of critical reading. Two-hundred-eighty seventh and eighth grade students and four certified teachers from a central Minnesota junior high school participated in the study. Using forms 3A and 3B of Reading Tests (STEP), a pre-test/post-test design was used. The 128 students in the experimental group were given a nine week series of seven lessons designed to teach skimming and scanning, recognizing the author's purpose, making generalizations, drawing inferences, judging the validity of the author's ideas, evaluating the logic of the author's statements, and distinguishing fact from opinion. It was hypothesized that the students who had received training in critical reading would improve their critical reading abilities to a greater degree than those who had not received this training. There was a significant difference (.01 level) between the post-test inference and application sub-tests scores of the seventh grade groups in favor of the experimental group. There was a significant difference between the post-test evaluation sub-test scores of both the seventh and eighth grade groups in favor of the experimental groups. Therefore, it was demonstrated that these critical reading skills do not develop automatically. The critical reading skills of evaluation, application, and inference can be taught.

APPROVED BY THESIS COMMITTEE, MARCH 1973

Lynette Chang, Chairman

THE SIGNIFICANCE OF CHRONOLOGICAL AGE ON READING ACHIEVEMENT THROUGH GRADE SIX

James Phillip Lemieux

PROBLEM: It was the purpose of this paper to try to discover if there was any difference between a child's chronological age when he finished grade six and his level of reading achievement at that time.

Boys make up the larger percentage of retarded readers and are maturationally one year younger than girls. If boys start school later or are retained during their first six years of

school, they should generally read as well as girls.

PROCEDURE: The Nelson Reading Test, Grades 3-9, Form A was used to test 1245 students in grade 6.9. Test manual directions were followed explicitly.

The testing took place over a four-year span from 1968 to 1971. All tests were given by one person in the same testing situation from year to year. Proctors remained unchanged with only one exception; one new teacher was added.

It was noted that authorities in the field of reading showed divergent and conflicting views on chronological age and sex differences. Approximately one-half of the literature researched leaned away from chronological age while the other half favored some kind of chronological age criteria for school entrance.

FINDINGS: Several items of interest were noted:

1. Boys were two months older chronologically than the girls;
2. Older boys tended to read better than older girls;
3. Younger girls read better than younger boys and older boys;
4. Younger boys read better than older boys;
5. Girls averaged nearly one year above the boys in grade equivalents.

SUMMARY AND CONCLUSIONS: Since the statistics used were limited to the range, median, and mean, more research should be done in the area of chronological age and sex differences. This research would help educators, administrators, and parents more accurately determine if their children are ready for formal reading instruction.

APPROVED BY THESIS COMMITTEE, AUGUST 1972
Roger Rouch, Chairman

ASSESSING TEACHER JUDGEMENT OF INSTRUCTIONAL READING LEVEL

Lois A. Sjoquist

The study examined the competencies of teachers in (a) estimating instructional reading level of students and (b) testing and teaching of recognition and comprehension skills.

Thirty classroom teachers completed a criterion-referenced test developed for use with Competency in Teaching Reading (Carl J. Wallen, Science Research Associates, 1972) and estimated their students' instructional reading level. The teacher judgements were evaluated by the students' performance on a cloze test constructed at the reading level indicated by the teacher.

The following null hypotheses were tested: Hypothesis one--There is no relationship between a student's performance on a cloze test passage and the reading level estimated by the teacher and hypothesis two--There is no relationship between a teacher's score on Performance Measure for Competency in Teaching Reading and his ability to estimate students' instructional reading level. Hypothesis one was rejected because the statistical analysis revealed a chi square value of 39.42 ($p .01$) existed between the variables. Hypothesis two was accepted because the relationship between the variables was not significant at the .01 level of confidence.

It appeared that teachers were using some criteria in estimating students' instructional reading level but there seemed to be no relationship between their ability to estimate instructional level and their score on the performance measure.

APPROVED BY THESIS COMMITTEE, AUGUST 1973
Roger L. Rouch, Chairman

SECONDARY EDUCATION

AN ANALYSIS OF STUDENT INITIATED ACTIVITIES IN A VOCAL MUSIC PROGRAM KINDERGARTEN-GRADE NINE

Janet Korte

ability to initiate study in the vocal music area, when the student is presented with an open schedule.

PROCEDURE: The study involved the vocal music area in the Thomas Gray Campus Laboratory School, St. Cloud State College. The writer was an instructor in vocal music in the school. The study took place between the years of 1967 and 1970. The enrollment of students for the kindergarten through grade nine averaged between 258 and 280 students.

The Thomas Gray Campus Laboratory School consisted of self-contained classrooms in 1967 to 1968. During 1968 to 1969, a move was made to an ungraded unit plan based upon the Wisconsin Research and Development Model.

In order to develop the study, it was necessary to identify the basic concepts in music education. The evaluative tools were developed into performance criteria sheets for children. Accurate records were kept over the three-year period in the form of class music schedules, instructor schedules and the student-initiated time schedules. Bar graphs and line graphs were constructed to present the accumulated data. The graphs were presented for each of the units and the junior high area. Line graphs and summary line graphs show comparisons between years, of the contact hours and the initiated scheduling.

SUMMARY: The change from self-contained rooms to ungraded units presented administrative problems in scheduling especially for the primary areas. Interest time blocks were gradually developed and this enabled some independent study time to be set up. Problems of large numbers of children in one area gradually diminished. In addition to the physical problems, there were some social problems that appeared among the peer groups and in family relationships.

An experimental program for grades seven to nine was set up. General Music was no longer a requirement. Minimum requirements in music aided in student-initiated scheduling. Interest groups and independent work units were developed; however, a chorus was continued for large group work.

CONCLUSION: To encourage student-initiated scheduling, interest time blocks in the units were developed. This enabled the child to select experiences in academic or special areas. Large group experiences were determined necessary and were continued as a part of the music program.

Individual records of each child's progress were determined necessary and were recorded on performance sheets. Skill areas were developed from these performance sheets.

It is felt by the writer that when the schedule for music was left open, the students scheduled themselves into the music program.

APPROVED BY THESIS COMMITTEE, AUGUST 1971

Jack R. Jones, Chairman

SPECIAL EDUCATION

NEGOTIATED CONTINGENCY CONTRACTING AND NEGATIVE CLASSROOM BEHAVIORS

Richard H. Bjorum

The purpose of this study was to determine if a negotiated contingency contract would extinguish negative classroom behaviors in the treatment and transfer conditions. The subjects were secondary students with histories of maladjusted school behavior and reading deficiencies attending a school for students with special needs. A single subject reversal design was utilized to determine if the contingency contract would extinguish negative classroom behavior in the treatment and transfer conditions. The treatment condition had a baseline period of one week; a first modification period of two weeks when the contingency contract was operating; a second baseline period of two weeks; and a second modification period of two weeks when the contingency contract was reinstated. The transfer conditions were other school settings where

the contingency contract was not operating.

A one-tailed t-test for correlated means was employed to test if there was a significant difference in incidence of negative classroom behavior between A vs B and A vs B' in both conditions ($p < .05$). The results of the analysis indicated that the negotiated contingency contract did significantly reduce the incidence of negative classroom behavior in the treatment condition prior to its removal and that it produced a minimal transfer effect where it was not operating. It can be concluded that contingency negotiated contracting with the students at the Career Education Center was an effective way of reducing negative classroom behaviors and that when it is abruptly removed it has a detrimental effect on the classroom adjustment of students.

APPROVED BY THESIS COMMITTEE, AUGUST 1973

Floyd W. Ayers, Chairman

ATTITUDES TOWARD THE HANDICAPPED HELD BY COLLEGE STUDENTS WHO HAVE SELECTED SPECIAL EDUCATION AS A CAREER VERSUS THOSE WHO HAVE SELECTED ELEMENTARY EDUCATION

Carrie M. Brantum

PROBLEM: This study attempted to identify differences in attitudes toward handicapped persons among elementary education students at St. Cloud State College. The study also sought to determine if professional and derogatory labels for certain handicaps are thought of as synonymous.

PROCEDURE: The population of this study consisted of 300 elementary education majors at St. Cloud State College. From this population, 72 subjects were randomly selected for the study sample. To obtain data on attitudes toward 15 handicapping conditions, the semantic differential technique was used. Elementary education students who minored in special education were compared to those who had other minors. Students beginning their major study were compared to those completing their major. The professional labels were compared to the derogatory labels.

CONCLUSIONS: The following conclusions were determined from the data:

1. Attitudes of elementary education majors toward the handicapped were found to be similar regardless of type or amount of training except for the following findings:
 - A. Special education students were found to have more positive attitudes ($p < .05$) than non-special education students toward the emotionally disturbed.
 - B. The effect of special education training was found to improve attitudes ($p < .05$) toward the concept "deaf."
 - C. Attitudes of the non-special education students toward the concept "mentally retarded" ($p < .05$) improved from beginning to completion of their major, although they were still less positive than the special education students. The prior positive attitudes of the special education students seemed to be not as subject to change as more negative attitudes.
2. Derogatory labels were not found to correlate with professional labels indicating that the elementary education majors do not consider the labels interchangeable.
3. The rank order of attitudes toward the handicapping conditions from most positive to most negative were as follows: "Normal," "deaf," "blind," "cripple," "physically handicapped," "handicapped," "mentally retarded," "tongue-tied," "dummy," "emotionally disturbed," "crazy," and "delinquent."

SUMMARY: Some significant differences in attitudes toward handicapped persons were found among elementary education students.

Professional and derogatory labels were found in most cases not to be synonymous.

APPROVED BY THESIS COMMITTEE, JUNE 1973

William E. Lovelace, Chairman

THE EDUCATION OF SPECIAL LEARNING AND BEHAVIOR PROBLEM CHILDREN AS A FUNCTION OF INDIVIDUALIZATION OF INSTRUCTOR

Janice A. Fandel

PROBLEM: The study was designed to examine the amount and type of individualization of instruction in SLBP classrooms. Comparisons were made between observer ratings of actual classroom practices and classroom practices as perceived by SLBP classroom teachers.

SAMPLE: The sample consisted of three teachers who have the services of the SLBP resource team and three other teachers who are without this service (traditional program).

METHOD: The teachers were asked to fill out the following: Teacher Questionnaire, Teacher Information Record, and Classroom Characteristics Inventory.

Three raters with graduate training in SLBP observed the teachers. Each teacher was observed for 30 minutes by the three raters at different time periods. There were four areas of individualization of instruction which were measured: use of intra-class grouping, use of a variety of materials, development of pupil autonomy, and differentiated assignments.

FINDINGS: There existed a significant difference at the .05 level in the comparison of the observer ratings and teacher self-ratings in the areas of use of a variety of instructional materials and differentiated assignments, with the teachers viewing their classroom practices in a more favorable way.

There was no significant difference between the classroom practices of the SLBP resource team teachers and the traditional program SLBP teachers at the .05 level on all areas of individualization of instruction.

DISCUSSION: In the classrooms there existed a variety of materials such as tape recorders, record players, and so on; however, they were seldom used. When they were in use, it was with the entire group that was being serviced at that time period.

In the area of differentiated assignments, the majority of teachers used the same books that were used in the regular classroom. Assignments were given to the group as a whole.

In both cases the teachers felt that the children had already been grouped according to their similar needs or weaknesses, therefore there was no evidence of individualizing within the groups.

APPROVED BY THESIS COMMITTEE, AUGUST 1972

Stanley C. Knox, Chairman

THE EFFECT OF THREE VARYING TEMPOS OF MUSIC UPON THE ACTIVITY LEVELS OF SEVERELY AND MODERATELY MENTALLY RETARDED CHILDREN

Melanie J. Harbrecht

PROBLEM: The purpose of this study was to ascertain the effect of music and, more specifically, three different tempos of music, upon the activity levels of an institutionalized population of severely and moderately retarded children.

PROCEDURE: This study was conducted with 30 subjects from Cambridge State Hospital in Cambridge, Minnesota, 13-years-old and under, who were the members of three independent groups, differing in tempo of music treatment. The subjects were observed individually in a research room by means of a two-way mirror. They were exposed to four experimental conditions during the ten-minute observation periods:

1. Two minutes adaptation time
2. Two minutes pre-baseline (no music)
3. Four minutes music
4. Two minutes post-baseline (no music)

Seven different measures of activity were tallied in one-half minute time intervals for each subject.

FINDINGS: The data was analyzed using 1. repeated measured analysis of variance and 2. one-way analysis of variance. There was a significant difference at the .05 level of confidence in activity level under a music-no music condition for Sedentary Time-Adagio Music, Repetitive Movements-Adagio Music, and Self-Stimulative Behaviors-Adagio Music. The remainder of the groups showed no significant differences. There was also a significant difference in activity level under three different tempos of music for the Touching Toys activity. The other six categories of activity showed no significant differences.

SUMMARY AND CONCLUSIONS: The results indicate that the music used in this particular study was not very effective in altering activity level for the measures of activity used. The investigation was focused on too limited a musical variable. Further studies with a more complex design are recommended in this area. Variables such as intensity, rhythm, and melody should be included, as well as tempo.

APPROVED BY THESIS COMMITTEE, AUGUST 1973

James F. Lewis, Chairman

A STUDY OF THE EFFECTS OF AN EXPERIMENTAL JUNIOR HIGH AND SENIOR HIGH DROPOUT PREVENTION PROGRAM

Philip A. Koprowski

PROBLEM: The problem of this study was to determine if there were differences between potential junior and senior high dropouts who were enrolled in the Resource Action Program (RAP) and a matched control group of potential dropouts who were receiving mainstream education with regard to the following variables: (1) reading achievement, (2) grade point average, (3) attendance in school, and (4) number of students who drop out of school.

PROCEDURE: Twenty-three students were selected in each of the junior and senior high schools for the RAP group. A control group was selected using class rank and grade point averages of the RAP students. Each group was pre- and post-tested in a reading achievement test. Grade point averages, attendance and number of students who dropped out were measured using the 1971-1972 and the 1972-1973 school years. The RAP students received special help in the way of special classes, tutoring, work study program and their own field worker. The controls received mainstream education.

FINDINGS: The senior high experienced a large dropout rate. Due to this fact, the data on the senior high group was not analyzed. The junior high showed no significant differences between the RAP and control group concerning reading achievement, grade point averages, attendance and number of students who dropped out of the program.

APPROVED BY THESIS COMMITTEE, AUGUST 1973

James Lewis, Chairman

AN INVESTIGATION OF CORRELATIONS AMONG THE ILLINOIS TEST OF PSYCHOLINGUISTIC ABILITIES, THE PEABODY PICTURE VOCABULARY TEST AND THE PEABODY INDIVIDUAL ACHIEVEMENT TEST

Michael J. Leigh

PROBLEM: It was the purpose of this study to determine the coefficients of correlation among the subtests of the Illinois Test of Psycholinguistic Abilities, the Peabody Individual Achievement Test and the Peabody Picture Vocabulary Test.

PROCEDURE: Ten graduate students administered the three tests to five students who were randomly assigned to them in order to minimize the bias factor. The testing was conducted

within a two-week period at the midpoint of the children's school year.

When all data were collected, a Pearson Product Moment correlation was computed among all tests.

FINDINGS: The hypothesis to be tested, stated in the null form, was: There are no significant correlations among the sub-tests of the (1) Peabody Picture Vocabulary Test, (2) Peabody Individual Achievement Test, and (3) Illinois Test of Psycholinguistic Abilities. The findings demonstrated by a correlation matrix reject the hypothesis.

SUMMARY: Results of the analysis of data revealed significant correlations among the sub-tests of the three tests. Only two correlations proved to be not significant at the .05 level. The magnitude of the relationship varied from small to large. The study reveals a high correlation with decoding skills. When an individual student revealed a high decoding pattern, he did well on achievement. This may have some significance to learning patterns.

The graphic matrix presented demonstrates clearly that the Peabody Individual Achievement Test has a basic language foundation. Nine of the I.T.P.A. subtests demonstrated significant correlations with the P.I.A.T. The only non-significant correlation was that of manual expression.

APPROVED BY THESIS COMMITTEE, AUGUST 1972

Stanley C. Knox, Chairman

A STUDY OF THE EFFECTS OF AUDITORY AND VISUAL MODALITIES ON COMPREHENSION

Gwen Hall Martinson

PROBLEM: The purpose of this study was to determine whether children with a high preference for either the auditory or the visual sensory modality scored higher on tests of comprehension when such tests were presented by a method which enabled the subjects to use their preferred modality.

PROCEDURE: The sample for this study was drawn from all the fourth grade children enrolled in an inner city school. The auditory and visual reception subtests of the Illinois Test of Psycholinguistic Abilities were administered to all fourth grade children. Those children who exhibited a difference of one standard deviation or more between standard scores on the auditory and visual reception subtests were assumed to have a preferred learning modality. A sample of 15 students who met the criteria in each modality were randomly selected to form two groups, high auditory (Hi-A) and high visual (Hi-V).

The reading recognition and reading comprehension subtests of the Peabody Individual Achievement Test were then administered to the 30 subjects. The reading comprehension test was administered twice, once in the standard form with the material presented visually and once in an auditory manner.

FINDINGS: The results indicated no significant differences between the Hi-A and Hi-V groups on visual comprehension, when an analysis of covariance was applied to control for word recognition skills. A t-test failed to yield significant differences between the means on the auditory comprehension scores.

APPROVED BY THESIS COMMITTEE, AUGUST 1972

Stanley C. Knox, Chairman

COMPARISON OF THREE SELECTED INDIVIDUAL MATHEMATICS ASSESSMENT INSTRUMENTS WITH TMR ADOLESCENTS

John James O'Brien

PROBLEM: The purpose of this study was to determine (1) if the mathematics subtest of the Peabody Individual Achievement Test (PIAT) and eight subtests of the KeyMath diagnostic

test, A, B, C, D, E, L, M, and N, are valid for use with trainable mentally retarded adolescents, and (2) if any subjects could perform on six tasks of conservation as measured by the Goldschmid standardized test of conservation.

PROCEDURE: The sample consisted of 50 TMR children selected from two intact populations of 22 and 135. Intelligence quotient, mental age, and chronological age ranges were 32 to 55, 4 to 9 years, and 12-11 to 21-5 years. The corresponding means for these ranges were 17.9, 6.9, and 44.1. The subjects had to have been in a public school program for a minimum of two years. Three qualified examiners administered the tests. To reduce examiner bias, subjects were systematically rotated through the test sequence and examiners rotated on test administration. Coefficient correlations between PIAT and KeyMath, PIAT and mental age, and KeyMath and mental age were obtained. The subjects were divided into three groups on the basis of age and associated PIAT and KeyMath scores were subjected to a one-way analysis of variance. Percentages of children to basal on the PIAT and eight KeyMath subtests were calculated. The Goldschmid tests were analyzed to determine the mental ages at which the subjects were able to conserve.

RESULTS: All correlations involving PIAT, KeyMath, and mental age were high-positive and significant. Obtained F ratios, for this sample, indicated that chronological age does not significantly affect test scores. The percentage of PIAT basals was high. Percentages of KeyMath subtest basals varied considerably. Thirty-five of the 50 subjects scored zero (absolute range 0 to 12) on the Goldschmid test. No child with a mental age less than seven years could conserve on any item. The mean mental age of subjects able to conserve was seven years, eight months.

CONCLUSIONS: It was concluded that the PIAT and KeyMath tests are valid for use with TMR children with mental ages five to seven or eight years, and that these instruments could also be used for pre-test and post-test purposes. Low basal percentages on certain KeyMath subtests indicated a re-evaluation of initial test items for use with TMR children. An item analysis of these achievement tests, in conjunction with a review of the literature of Piaget and others, would appear useful in planning mathematics curriculum and programs for individual TMR children.

APPROVED BY THESIS COMMITTEE, AUGUST 1973

Stanley C. Knox, Chairman

AN INSTRUCTIONAL MATERIALS SURVEY OF SPECIAL LEARNING AND BEHAVIOR PROBLEM TEACHERS IN SOUTHWESTERN MINNESOTA

JoAnne I. Peterson

PROBLEM: The Special Learning and Behavior Problem (SLBP) program in the State of Minnesota assumes that children falling within this category manifest a wide range of special needs which can only be met by individual diagnosis and carefully individualized programming. An SLBP teacher must be able to make a psycho-educational diagnosis of the student and select from a wide variety of materials a specific material for the student to achieve a successful completion of his behavioral goal. The purpose of this study was to investigate the SLBP program in a 16-county area in Southwestern Minnesota, to discover if the current selection of instructional materials is influenced by psycho diagnosis, and to find out whether teacher and situational characteristics enter into the selection.

PROCEDURE: A questionnaire was developed to survey materials which are being used by SLBP teachers in a 16-county area of Southwestern Minnesota. The six teacher characteristics which were selected for this study are: (a) certification of teacher, (b) total caseload of teacher, (c) status of teacher's employment, (d) classroom model of teacher, (e) grade level taught, and (f) size of school. Related to each of these characteristics were the criterion variables of where these teachers located their materials, their reasons for material selection, and the types of materials they were using.

FINDINGS: Southwestern Minnesota had a higher percentage of certified and full time personnel than did the rest of the state. The certified SLBP teacher used a variety of materials which

would indicate they are individualizing programming for their students.

The majority of teachers in this survey worked as tutors and at the primary-intermediate level. All six of the teacher characteristics did influence material selection, and there was evidence that psycho diagnosis was being used for material selection.

Of the area in the State surveyed, reading subject matter received the major emphasis followed by math, language, and perceptual motor. In the materials tabulation, a discrepancy which appeared was that teachers employ material a great deal which they do not find particularly useful.

SUMMARY: Material selection was influenced by teacher and situational characteristics. There was evidence from this study that teachers are using psycho-educational diagnosis with a large variety of materials to plan individualized programs for students.

APPROVED BY THESIS COMMITTEE, OCTOBER 1973

Floyd W. Ayers, Chairman

A COMPARISON OF THE PERFORMANCE OF TWO ADAPTIVE BEHAVIOR INSTRUMENTS OF INSTITUTIONALIZED SEVERELY AND MODERATELY RETARDED

Linda Lucerne Rieves

PROBLEM: The purpose of this study was to compare the difference in total raw score gains and subscore gains on two adaptive behavior scales: (1) the TMR Performance Profile for Severely and Moderately Retarded, and (2) the Brainerd State Hospital Rating Scales; and to ascertain the correlation between the scales when employed with severely and moderately retarded institutionalized subjects.

PROCEDURE: The sample consisted of 32 severely and moderately retarded institutionalized children and young adults attending day classes for five hours per day. The subjects were rated on the two adaptive behavior scales by the classroom teachers in November and again in May.

FINDINGS: The findings of the study revealed significant differences at the .001 level of confidence between the pretest and posttest scores on both the TMR Profile and the Brainerd Scale. Significant differences at the .05 level of confidence or greater were found for pretest and posttest subscales on the Brainerd Scale and all but the Communication subscale on the TMR Profile. The two instruments were found to be significantly correlated at the .001 level of confidence.

APPROVED BY THESIS COMMITTEE, NOVEMBER 1973

James Lewis, Chairman

TWO ANCILLARY APPROACHES TO READING INSTRUCTION: A BASAL READER APPROACH VERSUS AN ECLECTIC APPROACH

Carl R. Skordahl

PROBLEM: This study was designed as an experimental-methods study to determine the relative effectiveness of two ancillary reading approaches. The approaches were designed to supplement a conventional basal reader approach used in the classroom. One approach (Treatment 1) used the same methodology as that prescribed by the basal reader approach. The second approach (Treatment 2), an eclectic design, used methodology from several approaches other than the basal reader approach. The two ancillary approaches were utilized in a resource setting and were required to use the identical skill sequence and content of the basal reader program they were supplementing.

PROCEDURE: Fifty subjects were selected by stratified random sampling techniques. The independent variable, mental age, was measured by the Slosson Intelligence Test just prior to

commencement of the study. Pre- and post-testing of the control variable, reading achievement, was measured by an Informal Reading Survey. To qualify for the N, subjects had to be approximately one year behind their grade placement in reading achievement.

Five Special Learning-Behavior Problem resource teachers participated in the study. Each of the SLBP resource teachers identified ten qualifying subjects for the sample. These subjects were randomly divided into two equal cells. Each cell was assigned a treatment and received reading instruction according to its approach for the remainder of the study, which covered a six-month period. All pre- and post-testing was accomplished by each SLBP resource teacher in his respective building. At the conclusion of the study, the raw data from each of the ten cells was combined into two sets of data, one set for the five cells receiving Treatment 1 and the other set for the five cells receiving Treatment 2.

RESULTS: A two-group analysis of covariance with one single variable (MA) was employed as the statistical treatment on the raw data. Two questions were formulated with regard to the statistical analysis. They were: (a) Does one treatment exceed the other on the average? and (b) For what values of the predictor variable does it do so? The mean reading gains for Groups I and II were .86 and .93 (grade equivalent) respectively. The reading gains were not significant at the .05 level of confidence between the mental ages of -4.08 and 31.70 years. The sample in this study did fall within the range of least significance at the .05 level of confidence. The point at which there would be no significant differences in reading gains between the two approaches for the predictor variable was -3.20 years.

CONCLUSION: The two ancillary approaches in this study, designed to supplement a conventional basal reader approach, both have merit. However, when controlling for initial differences in mental age, which did not have a covarying effect on the outcomes, the mean reading gain in favor of Treatment 2 was not a significant gain.

APPROVED BY THESIS COMMITTEE, NOVEMBER 1972

James F. Lewis, Chairman

INVESTIGATION OF THE RELATIONSHIP BETWEEN CHILDREN'S LANGUAGE AND TEACHER-PUPIL INTERACTION

Jerry James Wellik

PROBLEM: It was the purpose of this study to determine the effect of pupil language as measured by the auditory reception and grammatic closure subtests of the Illinois Test of Psycholinguistic Abilities and indirectly by maternal education level on teacher interaction style in dyadic contacts with children.

PROCEDURE: Twenty-one children age seven through ten were administered the auditory reception and grammatic closure subtests of the Illinois Test of Psycholinguistic Abilities. Maternal education was ascertained from the children's cumulative records. Teacher-pupil interaction for three hours of class time for each child was recorded according to the Flanders' Interaction Analysis Category System. A second observer trained in interaction analysis provided a reliability measure. When the data were collected an ANOVA was computed between the maternal education level groups and teacher interaction style (Indirect:Direct ratio), and multiple comparisons were computed between language scores and teacher interaction style.

FINDINGS: The children of the different maternal education groups were treated differently, with low maternal education level children receiving a more direct teaching style. There was no relationship found between direct measures of the children's language and teacher interaction style.

SUMMARY: The teachers interacted with the student of the different maternal education level groups differently. However, the findings did not support the hypothesis that student language characteristics elicit different interaction style from teachers.

APPROVED BY THESIS COMMITTEE, NOVEMBER 1972

Floyd W. Ayers, Chairman

ART

A STUDY OF WATERCOLOR PAINTING WITH EMPHASIS IN THE SECONDARY ART PROGRAM

Matt V. Kahnke

PROBLEM: This study was written to be used as an aid for a teacher in watercolor painting. It discusses materials, techniques, composition; artists, and the teaching of watercolor painting. It attempts to answer the following questions:

1. What materials are used in watercolor painting?
2. What techniques are common and essential to the understanding of watercolor painting?
3. In what way have selected artists made notable contributions to watercolor painting?
4. How can the knowledge gained be applied to teaching the art of watercolor painting on the secondary level?

PROCEDURE: The descriptive method of research was used to select authors and artists who would give an overview of all aspects of watercolor painting. The total findings were condensed and evaluated to be used in developing a watercolor unit for the secondary classroom.

The artists selected were those having some influence on either English or American watercolor development.

The study does not purport to cover every aspect of watercolor in detail, but selects pertinent information helpful in teaching watercolor painting on the secondary level.

FINDINGS: A discussion of the findings related to the problem was presented and the information was condensed and used to develop suggestions for two units in watercolor painting.

It was found that there are four basic materials which most artists feel are essential to any watercolor painting. These materials are: paints, brushes, paper, and accessories.

It was found that certain techniques are essential to understanding watercolor and the pertinent ones related to the secondary classroom were selected.

The chapter on the secondary classroom covered motivation, materials, and techniques.

CONCLUSIONS: This study about watercolor painting was written to be used by the secondary teacher. It discusses materials, techniques, artists, composition, and resources for teaching watercolor. It does not cover any aspect in detail, but is meant to be used as a starting point for additional study and research. This study should spark some interest, answer some questions, and raise some curiosity for further exploration in watercolor painting.

APPROVED BY THESIS COMMITTEE, MAY 1973

Gerald Korte, Chairman

A COMPARATIVE AND DESCRIPTIVE ANALYSIS OF TWO APPROACHES TO THE USE OF CONTEMPORARY AMERICAN WATERCOLORISTS' TECHNIQUES AND THEORIES IN A SCHOOL ART PROGRAM

John J. Muller

PROBLEM: The purpose of this study is to utilize techniques and theories of contemporary American watercolorists in a comparative and descriptive analysis of two approaches: (1) to paint directly from nature or color sketches from nature, and (2) to paint from colored slides projected onto a screen, in selected junior high school art classes.

IMPORTANCE OF THE STUDY: It has long been common practice for watercolor painters to go to their subject for landscape painting. Painting from nature; however, has its problems

when applied to the school art program. Some of the things that could make painting outdoors difficult would be: weather, time, and the proximity of the school to areas to be painted. The use of slides could allow for a much more economical use of time and there would not be any problem with travel or weather.

TEST INSTRUMENTS AND PROCEDURE: The groups tested consisted of sixteen eighth grade students, seven in Group I and nine in Group II. In Group I five students completed their paintings. These five were used and from Group II five were randomly selected. These selections were made by assigning each student a number, these were placed in a container and five numbers were drawn.

EVALUATION AND ANALYSIS OF DATA: The evaluation of the sample collected was done by three members of the art department at St. Cloud State College, St. Cloud, Minnesota. In the evaluation of the sample the judges were to base their evaluations on the qualities-techniques, composition, color, and creativity. The raw scores collected were processed with a computer. From these raw scores were computed the mean, standard deviation and "T" statistic.

SUMMARY AND CONCLUSIONS: The results of the evaluation indicates that paintings done indoors from slides were somewhat more successful than those painted from nature. On the basis of the study further research is encouraged.

APPROVED BY THESIS COMMITTEE, MAY 1973
Gerald Korte, Chairman

A SUGGESTED ART CURRICULUM FOR EIGHTH GRADE STUDENTS BASED ON MOTIVATION UTILIZING DRAMATIC PRESENTATION AND INTERPRETATION

David J. Neron

PROBLEM: The research of this study is concerned with attempting to design a curriculum with motivation using dramatic presentation whereby the eighth grade student is stimulated to utilize all of his feelings, emotions, and ideas along with whatever skill he has or has learned to creatively express himself in Art.

HYPOTHESIS: The use of various types of dramatic presentation such as dramatic readings, poems, music, stories, and words and phrases with technical and physical props or a combination of any of these including sets, makeup, and recorded aides involved in motivational procedures at the Junior High School level in Art should result in the student having a greater feeling of freedom to creatively interpret his feelings, emotions, and ideas with less emphasis placed by the instructor or the students, on their individual skill to technically reproduce something they merely observe.

A logical development and outline of this research is to look at self-expression, as its meaning and importance dictate the motivation within a curriculum used to achieve it. Second, a review and examination of the background of the person and personality who is to creatively express himself--the adolescent. Third, an examination of motivation as it has been used and what current authorities feel it should consist of and accomplish. Next, a suggested eighth grade curriculum using motivation based on dramatic presentation and interpretation.

SUMMARY: An analysis of the data researched indicates a definite need and natural interest on the part of adolescent students to participate in creative individual expression.

The allowance of feelings, ideas, and emotion as part of a portrayal within adolescents art work can and should provide an outlet for feelings, a means of communication of ideas and a source of discovery of each student's personality and person by which they may look and possibly understand themselves and by which others may know and understand them.

APPROVED BY THESIS COMMITTEE, JUNE 1972
Gerald Korte, Chairman

THE FORMULATION OF A MEDIUM-FIRE CLAY BODY AND GLAZE FOR USE IN A SECONDARY ART PROGRAM

Eugene James Waldowski

PROBLEM: The positive attributes of a cone 4 to cone 6 clay body and glaze, characteristic of stoneware and high-fire glazes, should not be neglected in a secondary school ceramics program. The high cost of commercially prepared clay and glazes, the definite lack of an aesthetically pleasing commercial clay body and glaze, and the total involvement of the student in the ceramics program prompted the experimentation. It was the purpose of this thesis to formulate (1) a cone 4 to cone 6 clay body that could be used successfully for throwing in art classes of secondary schools, and (2) three cone 4 to cone 6 base glazes with different surface textures.

PROCEDURE: The procedure used to formulate a medium-fire clay body was to combine a low-fire earthenware clay with the higher firing ball and fire clays. The procedures used to formulate two base glazes using a feldspar began by finding out the formula of a feldspar, determining how much could be used and divide the formula accordingly, and to fill the rest of the formula with other ingredients. The procedure used to develop the base glaze using slip clays was to use the line blend method varying the percentages of slip clay and fluxing chemical.

FINDINGS: A medium-fire throwing clay body was formulated using Cedar Heights Redart, Old Hickory ball, and Denver fire clays. Another clay body attempted using Ochs Cem-mix proved unsuccessful. Two cone 4 to cone 6 base glazes were formulated using 56.8 and 46.0 percent of nepheline syenite as the major ingredient in the formulas. The glazes were an opaque, white mat; and a milky white, semi-opaque, semi-gloss pattern glazes respectively. A black pattern, opaque slip glaze was also formulated using albany clay, black barnard clay, and colemanite.

CONCLUSION: The clay body and glazes were quite acceptable and should meet the requirements of a public school ceramics program.

APPROVED BY THESIS COMMITTEE, NOVEMBER 1971

Laurie L. Halberg, Chairman

MUSIC

THE IMPLICATIONS OF ACCOUNTABILITY ON MUSIC EDUCATION IN THE ELEMENTARY SCHOOL

Lynda Jurgens

PROBLEM: As educational budgets increase, they generate more pressure for accountability. Music educators must be ready to answer the demands for serious accountability in their educational programs. The purpose of this study is to trace the development, problems, potential forms, and current practices in educational accountability and to relate these findings to the area of music education.

PROCEDURE: Chapter I is an introduction to the problem and offers a review of the literature concerning educational accountability. The investigator found a great deal of discrepancy in the views held by various writers. There is little agreement as to who is accountable, to whom he is accountable, and for what he is accountable.

To better understand the problem and its possible resolution, Chapter 2 traces the development of the accountability concept, the history of the concept, types of accountability, and the accountability roles of various personnel in education.

In Chapter 3, the investigator analyzes the evaluation methods presently used in elementary music education and how these evaluative tools meet accountability criteria. The problem of implementing the accountability concept in aesthetic education is discussed and a method of program accountability is suggested. A model for use in the needs assessment component of program accountability is offered.

Chapter 4 includes a summary of the position of accountability in elementary music education. Recommendations for further action are given.

FINDINGS: The methods presently used in the evaluation of the elementary music education program do not meet current accountability criteria. Many of the proposed accountability forms do not lend themselves to the evaluation of music as aesthetic education. Since most of the information passed on to children through music education in the elementary school lies in the realm of the affective domain, we cannot be required to use the same types of accountability measures used in evaluating the cognitive domain. Program accountability appears to be the method through which music educators can demonstrate accountability in music education.

There are six major component parts to program evaluation. They are: (1) the identification of the problem using needs as the criteria (a model is offered for implementing a needs assessment program), (2) the determination of solution requirements and alternatives, (3) the selection of strategies and tools from among listed alternatives, (4) implementation of the plan, (5) the determination of program effectiveness, and (6) revision of the program as required.

CONCLUSIONS: The degree of communication fostered by the music educator with the community, students, and parents, and the strength of commitment to the accountability concept will determine the success of the accountability endeavor.

It is recommended that a task force be set up through the Music Educators National Conference to aid schools in implementing program accountability in elementary school music. Furthermore, the Minnesota Legislature should require each district in the state to establish a process for the development of education goals relating to music education. The Legislature should also help expand the technical capacity of schools in assessment and program management skills.

Alternatives in aesthetic education should be offered, so that all children can expand talent in an area of special interest. The teacher-pupil ratio must be narrowed if success in such a program evaluation is expected.

It is the hope of the investigator that this study will provide a deeper understanding of the accountability concept as well as definitive direction of educational accountability in elementary school music education.

APPROVED BY THESIS COMMITTEE, MAY 1973

Lorene Marvel, Chairman

COMPARATIVE ACHIEVEMENT IN MUSIC READING SKILLS BETWEEN THE KODALY AND TRADITIONAL APPROACHES IN FIRST GRADE

Donald L. Lochner

PROCEDURE: Beginning with the second week of September, in the 1971-72 school year, three sections of first grade students from Zumbrota, Minnesota, were selected to participate in this controlled experiment. Two periods per week for control group I were devoted to the "traditional method" while a second group of first grade students, control group II, received music instruction by mixing some of the Kodaly method and some of the traditional method with little attention given to sequential development. Control group III utilized two periods per week for the Kodaly method.

A testing instrument, designed to evaluate the objectives stressed in first grade, was used as a pretest and as posttests in May and September of 1972.

FINDINGS: The Kodaly method surpassed the traditional method by an average of 5.8 percentage points per test item. However, this difference would not indicate that the Kodaly method was significantly superior to the traditional method. There were 14.9 points difference between the Kodaly and the mixed method and 9.1 points difference between the traditional method and the mixed method which would indicate that over-all the Kodaly and the traditional methods were somewhat superior to the mixed method.

SUMMARY AND CONCLUSIONS: When evaluating various approaches to the teaching of first grade music, one must consider other factors in addition to statistical testing results. Children in the Kodaly group did not show the over-all enthusiasm throughout the school year

that was experienced in the other two groups. This may have been due to the chart format, the unappealing selection of songs in the charts in addition to other aspects of Threshold to Music.

A highly structured program like the Threshold to Music adaptation of Kodaly's philosophy does not allow consideration of and adaptation to individual student needs.

It is thus recommended that a music curriculum include the principles stressed in the traditional method with some focus on the rhythmic activities as found in the first section of Threshold to Music.

APPROVED BY THESIS COMMITTEE, MAY 1973

Lorene Marvel, Chairman

THEATRE

A STUDY OF THE VARIOUS TECHNIQUES USED BY THE GUTHRIE THEATRE IN PROMOTING ITS YOUTH AUDIENCES

Carolyn L. Bye

The author's intent in writing about the Guthrie Theatre's youth program was: (a) to make the reader aware of the numerous approaches the Guthrie Theatre used to promote its youth audiences, and (b) to serve as a guide to others planning youth programs.

Chapter 1 describes in detail every program for students in which the Guthrie was involved from 1963-1970. Because many of the Theatre's records were lost or destroyed, the programs described cannot be regarded as the extent of the Theatre's programs, but it can be regarded as complete in terms of the material that is still available.

In Chapter 2, the author discusses conclusions she has drawn after studying the student programs and the comments of individuals who were involved in the programs.

The author concludes in Chapter 2 that:

1. The Guthrie has never had a consistent philosophy guiding their youth promotion programs.
2. The Theatre did not keep accurate records.
3. Youth programs were often hastily planned and once implemented, their results were rarely assessed.

Because the author was not in a position to accurately evaluate the successes or failures of the Theatre's programs, evaluations are made by individuals who were involved in the projects in various capacities (see Appendix).

APPROVED BY THESIS COMMITTEE, JUNE 1972

Dale L. Swanson, Chairman

A STUDY OF THE FEDERAL THEATRE PROJECT IN MINNESOTA

Florence Goodrich

PROBLEM: A Federal Theatre Project in Minnesota started to develop in August, 1935, and officially ended in January, 1936. This thesis tries to bring together in one study much of the material related to the project from the early efforts to establish it through its premature demise and subsequent attempts to reinstate it. It also suggests the major reasons for this premature conclusion to the project.

PROCEDURE: A number of original sources of material were investigated. These included: (1) the personal papers of Professor E.C. Mabie (former regional director for the Midwest Federal Theatre Project) at the university libraries of the University of Iowa, (2) the National Archives and Records Service in Washington, D.C., (3) microfilm copies of the Minneapolis Journal for the entire year 1935, and January, 1936, and (4) interviews and conversation with people who had been associated with the project.

FINDINGS: After personnel were chosen to head up the Federal Theatre Project on national, regional, and state levels, proposals for a theatre project in Minnesota were sent to Washington for approval. Unfortunately, due to various irregularities in the drawing up of these proposals, they had to be returned twice for revision. The irritation created by this delay and a variety of other administrative and individual difficulties was heightened by an unscrupulous news report that appeared in the *Minneapolis Journal* on December 13 to the effect that "Federal Fan Dancer No. 1" was employed on the project to entertain in the CCC camps.

Although \$50,000 had been allocated to Minnesota, the WPA state administrator requested that the Minnesota theatre project be cancelled. The funds were removed from the project and were never to be reinstated even though numerous requests and studies for its reinstatement were made by various groups during 1936, 1937, and 1938. The national Federal Theatre Project was discontinued by Congress in 1939.

CONCLUSIONS: Notwithstanding the fact that conditions in Minnesota seemed to be especially favorable for the development of a theatre project, the project failed.

The major factors which led to its demise were:

1. Political factors, such as disagreement over who was in control of the hiring of supervisory personnel, and the inability of the artistic directors to cope with the bureaucratic machinery set up to handle the project,
2. Unsympathetic coverage by the *Minneapolis Journal*,
3. Poor public relations on the part of the state director, and, most important,
4. The part-time leadership of Mr. A. Dale Riley which did not enable him to give the time, attention, and direction to the project that was vitally needed in its initial stages.

APPROVED BY THESIS COMMITTEE, MAY 1972

Dominick J. Cermele, Chairman

THE BIRTH, LIFE AND DEATH OF THE ST. PAUL CIVIC OPERA ASSOCIATION

Gerald J. Olsen

GENERAL DIRECTION: This thesis is a history of the Saint Paul Opera Association. It examines how the organization was conceived, developed, grew and finally ceased to exist as a civic institution.

The primary emphasis is on the overall structure of the organization and how this structure was altered to meet the demands set by the social and economic state of the community, by personalities involved in its operations and by other major events and developments.

Major areas of concern include: the civic foundations of the organization; the Opera's ability to service a public need; the internal structural development of the association; the development of new programs to meet audience demands; the effect of personalities on the Opera's development; overall financial and artistic trends; the final re-assertion of a civic-consciousness; the movement away from a civic orientation; and finally the forced professionalism which brought an end to the existence of the company as it was originally conceived.

PROCEDURE: No important periodical article, pamphlet, book, or other document has ever been written tracing the development of the organization. Two short papers of under ten pages in length have been prepared on aspects of the company's history, but neither of these provides adequate documentation or critical comment of any substantial value.

This work is based primarily upon minutes from past Board of Directors meetings of the Association, program notes, newspaper and magazine articles concerning events in the opera's past and personal interviews with individuals who were instrumental in the formation and advancement of the company.

The Board of Directors' minutes were quite complete, though initially disorganized; all past programs were available for scrutiny; microfilm files of past newspaper articles were available at the St. Paul and Minneapolis Public Libraries; the Minnesota Historical Society provided helpful general information concerning the community during the years of the opera's existence; and many individuals instrumental in the formation and advancement of the organization were available for interviews.

FINDINGS: The findings of this thesis indicate that the persistence and success of the Saint Paul Civic Opera Association has been determined to a great extent by its ability to relate to local audiences as well as the social and economic climate of the community.

Its birth was the result of a specific community interest and need; its growth the result of its flexibility in relating to the changing tastes and artistic demands of the community, and its demise the result of a less civic oriented social structure and the growing financial demands of total professionalism.

The organization existed, for the most part as a result of, rather than in spite of, the demands of the times in which it formed and grew.

SUMMARY AND CONCLUSIONS: The loss of a civic affiliation and the growth of professionalism as here described indicates a natural trend consistent with the times.

Skepticism as to whether or not this trend should have necessarily resulted in the near total negation of community affiliation is, however, expressed. The intense community participation evidenced during the trials of depression and war did lag in later years. The growing professionalism did limit participation to all but the most accomplished of the community's artists. There is indication, however, that by ignoring the interests of the community the company may have lost sight of a crucially important source of future support.

APPROVED BY THESIS COMMITTEE, JULY 1971

R. Keith Michael, Chairman

INDUSTRIAL EDUCATION

AN APPRAISAL OF THE MACHINE SHOP PROGRAM OF THE ALEXANDRIA AREA TECHNICAL-VOCATIONAL SCHOOL

Ronald W. Hill

PROBLEM: The problem of this study was to make an appraisal of the Alexandria Area Technical-Vocational School's machine shop graduates and the school machine shop program.

PROCEDURE: The procedure used in conducting this study was the survey method, utilizing a questionnaire distributed to the 1966-70 machine shop graduates and their employers. The data collected from the questionnaires was tabulated and analyzed in an attempt to evaluate the Alexandria Technical School machine shop graduate and the machine shop program.

FINDINGS: The findings of this study indicated that fifty-two graduates were employed in ten separate machine shops throughout the state, while fifteen graduates were employed in an area unrelated to their training. The primary job titles of the graduates was machinist apprentice and journeyman machinist while their primary job responsibility was production machinist. The graduate's employment pattern was found quite stable as forty-three were still employed with their first employer. Monthly starting salaries ranged from \$300-\$600 while present salaries ranged from \$400-\$1000. The graduates indicated a high degree of satisfaction with their training but did suggest several areas for curriculum revision. Seventy-nine percent of the graduates would take the machine shop program at Alexandria again while twenty percent would take another course sequence at Alexandria. Instructor's concern and overall school environment were what the graduates like best while "no criticism" was the most frequent response as to what the graduate liked least.

The employer's questionnaire indicated that they would not hire anyone without at least a technical school diploma. It was found that a three year tool and die graduate would receive more money than a two year general machinist graduate. The employers indicated the schools training to be "very adequate" to "adequate" and suggested several areas instruction could be improved. Employers rated the Alexandria graduates as "more successful" to "about the same" as other technical school graduates.

SUMMARY AND CONCLUSIONS: The purpose of this study was to make an appraisal of the Alexandria Area Technical-Vocational machine shop program. A survey was made among the graduates and their employers in an attempt to evaluate the machine shop program.

The findings indicated the graduates and their employers are generally satisfied with

machine shop program and the Alexandria Technical School. The graduates and employers did, however, make some suggestions for curriculum revision.

It was concluded that curriculum revision should be made in the following areas: (1) boring mill practices, (2) numerical control machining, (3) turret lathe practices, (4) carbide cutting tool uses, (5) speeds and feeds theory. It was also concluded that the school should encourage the tool and die sequence to capable students and make an effort to acquire more space to relieve the crowded condition.

APPROVED BY THESIS COMMITTEE, AUGUST 1971

Raymond H. Larson, Chairman

BIOLOGY

FOOD HABITS, LENGTH-WEIGHT RELATIONS, AND CONDITION OF THE SHORthead REDHORSE, MOXOSTOMA MACROLEPIDOTUM (LESUEUR), AND THE CARP, CYPRINUS CARPIO L., COLLECTED FROM THE MISSISSIPPI RIVER NEAR MONTICELLO, MINNESOTA

Robert Arthur Andersen

A total of 131 shorthead redhorse, Moxostoma macrolepidotum (Lesueur), and 100 carp, Cyprinus carpio L., were collected by electrofishing and seining from July, 1971, through June, 1972, in a six mile stretch of the Mississippi River near Monticello, Minnesota. The length-weight regression, $\log W = -4.8955 + 2.9682 \log L$, was calculated for the shorthead redhorse. Shorthead redhorse condition factors, $K(TL)$, varied with length, season, and sex, and had an annual average of 1.08. The calculated carp length-weight regression was $\log W = -4.6920 + 2.9334 \log L$. Carp condition factors, $K(TL)$, were not variable with length, but varied with seasons and sex.

Shorthead redhorse fed predominately in the morning, plus a small evening pulse. The carp fed throughout the light hours, with the largest amounts of food taken in the late evening and early morning.

The volume of food for 122 shorthead redhorse over 150 mm in total length was 96.32% immature insects, comprised largely of Trichoptera and Tendipedidae occurred in all these fish. The major food of nine shorthead redhorse under 50 mm in total length was Diffugia, Copepoda, Cladocera, mud, and diatoms. The carp fed predominately on algae from July through October, and fed on immature insects and detritus in November, May, and June. Algae comprised 55.17% of the total annual volume.

The diets of the two fishes were not similar and both diets varied with collection sectors. Both fishes consumed the largest amounts of food in the summer and fall. The shorthead redhorse positively selected Diptera and negatively selected Trichoptera and Ephemeroptera. The relationship between size of Trichoptera and total length of shorthead redhorse over 150 mm indicated that as the fish grew in length, the volume of the Trichoptera 3-6 mm decreased, 6 mm and longer increased, and 0-3 remained the same. Atactolytocestus huronensis (Cestodea: Caryophyllidea) was found in the stomachs of seven carp. This was the first record of this species in Minnesota. The shorthead redhorse and carp were considered to occupy separate niches in the study area based on different feeding times, differences in food items taken, unequal amounts of similar items, food taken from different areas of the river, and different habitats occupied.

APPROVED BY THESIS COMMITTEE, AUGUST 1972

Alfred J. Hopwood, Chairman

THE MANAGEMENT AND LIMNOLOGY OF BIG FISH LAKE

George V. Anderson, Jr.

April 1973. The chemical, physical, biological, and human influences upon these factors were examined.

The lake temperature, transparency, and conductivity were taken and the concentrations of dissolved oxygen, hydrogen ions, alkalinity (total), silica, ammonium-nitrogen, nitrate-nitrogen, nitrite-nitrogen, phosphates (ortho), and hardness (total) were determined.

Water temperature ranged from 1.0 to 25.4 C. The mean Secchi disc reading was 3.7 m, with a range of 2.8 to 5.1 m. Dissolved oxygen was found below the thermocline in the winter but not always during the summer, with a range of 0.0 to 12.8 mg/l. Silica ranged from 4.5 to 16.0 mg/l, with the lowest results coming from the euphotic zone. Nitrogen concentrations were low with the means of ammonium-nitrogen, nitrate-nitrogen, and nitrite-nitrogen equally 0.2, 0.06, and 0.003 mg/l respectively. Soluble phosphates were high with a mean concentration of 0.19 mg/l. Total hardness had a mean of 130 mg/l.

Fifteen genera and 18 species of algae were identified, with a chlorophyll "a" production ranging from 0.15 to 2.08 mg/l. Zooplankton dry weight biomass ranged from 96 to 1,784 mg/m² with four species identified. No coliform bacteria were found. Twenty-three species of aquatic vascular vegetation were identified, and the distribution and densities mapped. Twenty species of fish were identified, with growth rates and abundance calculated for most. The mean pressures of recreational activities that were tabulated included: angling at 8.85 manhours per ha-period; water-skiing and pleasure boating, 5.13 boat-hours per ha-period; a mean (total) boating pressure of 8.57 boat-hours per ha-period; swimming, 20.47 man-hours per ha-period; and the number of cars at the public landing, 4.04 car-hours per ha-period. The shoreline development of Big Fish Lake was 64.8% municipal, 6.7% agricultural, 26.8% forest, and 2.0% other.

APPROVED BY THESIS COMMITTEE, MAY 1973

Keith M. Knutson, Chairman

THE EFFECTS OF HEAT AND ENTRAINMENT ON THE FATHEAD MINNOW, PIMEPHALES PROMELAS RAFINESQUE

Stephen Richard Berguson

Field and laboratory studies were conducted to assess the effects of heat and entrainment on the fathead minnow, Pimephales promelas Rafinesque. Field studies were conducted at Northern States Power Company's nuclear generating plant on the Mississippi River near Monticello, Minnesota. The laboratory studies were designed to simulate the thermal and temporal conditions of entrainment at the Monticello plant.

Laboratory studies were conducted to determine how an instantaneous temperature increase would affect the oxygen consumption rate of fathead minnows. No statistical difference ($P > 0.05$) was found between the routine oxygen consumption and the oxygen consumption of fish subjected to an instantaneous temperature increase of 15 C except for at the highest test temperature (30 C). The mean oxygen consumption rate of the fish subjected to the instantaneous temperature increase was generally lower than the mean routine oxygen consumption rate at a common test temperature over most of the range of test temperatures.

Laboratory studies were also conducted to determine the response of fathead minnows to temperature changes as they occur during entrainment. The test fish were taken through a series of steps of increasing or decreasing temperature. During this procedure the test fish were subjected to a maximum temperature 15 C higher than the acclimation temperature. It was found that fish acclimated to 19 C can be expected to exhibit a mean response of death as a result of the 15 C rise and fish acclimated to 16.8 C can be expected to exhibit a mean response of loss of equilibrium as a result of the 15 C rise.

Field studies were conducted in which fathead minnows were introduced into the influent cooling water and were recaptured in the discharge canal. Immediate mortality as a result of entrainment ranged from 22.5% to 100% and the 168-hour post-test mortality ranged from 88.2% to 98.4%. A direct relationship is evident between the percent immediate mortality and the maximum temperature reached during entrainment. A direct relationship is also evident between the percent immediate mortality and the extent to which the maximum temperature reached during entrainment exceeded the upper incipient lethal temperature of the test fish.

The incidence of mechanical damage exhibited by those fish recaptured ranged from 5.4% to 13.5% of the total recapture.

It is estimated that the natural entrainment rate of small fish is near one fish per 14,060 cubic meters of discharge, or approximately 110 small fish per 24 hours.

APPROVED BY THESIS COMMITTEE, MAY 1973

Keith M. Knutson, Chairman

THE ECOLOGY OF THE EASTERN BLUEBIRD IN CENTRAL MINNESOTA

David A. Fiedler

A study of the ecological factors affecting the nesting of bluebirds was conducted from 1965 to 1972 on a 10 square mile study area in Morrison County, Minnesota.

Ninety one nest boxes were erected in open deciduous woods and pastured river bottomland. Observations were made from spring to fall and nesting data recorded. All bluebirds were leg-banded to study homing and longevity.

The average date for the first egg of the year was 27 April. The average date of the first egg of the first clutch was 11 May; the second 24 June. First clutches averaged 4.7 eggs; second clutches 4.2. Blue eggs were normally laid but 2.4 percent of the total were white, and laid inconsistently by specific females. Incubation was carried out by the female.

Both adults fed the nestlings and removed fecal material. Fledglings resulted from fifty five percent of the eggs laid. Nestling mortality was 16.5 percent.

In the spring bluebirds tend to return to the vicinity where they hatched or where they had nested previously. A few live to be five years old, but the highest mortality occurs the first year.

Nest site competition was primarily between bluebirds and house sparrows, house wrens and tree swallows. A small amount of mammalian competition was also observed.

Parasites such as the brown-headed cowbird, blow fly larvae and fleas had almost no impact on bluebird nesting, but predators destroyed 12.8 percent of all nests. Physical factors and human disturbances had a minor effect on bluebird nesting success.

During the study the bluebird population appeared to remain stable.

APPROVED BY THESIS COMMITTEE, JUNE 1974

Alfred H. Grewe, Jr., Chairman

A SURVEY OF AQUATIC COLEOPTERA FROM EIGHT SITES IN NORTHERN BOLIVIA

Wayne Dean Fitch

PROBLEM: The purpose of this survey was to compare collections of aquatic beetles from several selected sites in the jungle of Northern Bolivia. Specimens collected from eight sites were compared by date, habitat, genus, species, and frequency of occurrence.

PROCEDURE: Collections were taken with standard aquatic biological equipment at random dates and times both days and nights, with approximately 30 minutes collecting time at each site. Specimens were separated from debris by a modified Berlese funnel or by use of flooded trays. They were placed in individual labeled plastic containers with alcohol. After transfer to St. Cloud State College the specimens were mounted, labeled, classified to genus and each apparent species given a number. Data were assembled from the collection by date and site. A description of genera and species was made listing the major or preferred habitat of each.

FINDINGS: It was found that abundance of specimens varied due to changes in water level, types of vegetation, predators and prolonged decreases in temperature. Certain species tended

to migrate more than others to temporary ponds. Three families, Dytiscidae, Hydrophilidae and Noteridae, represented most of the aquatic beetles of this region while two families, Gyrinidae and Dryapidae, were represented by a single specimen each. A total of five families, 32 genera and 102 species were found. The Dytiscidae were represented by 37 species from 14 genera and 1054 specimens. The Hydrophilidae consisted of 46 species from 12 genera with a total of 1678 specimens. The third major family, Noteridae, had 4 genera and 17 species with 360 specimens. Altogether, 3094 specimens of aquatic beetles were collected, mounted and classified.

SUMMARY AND CONCLUSIONS: The overall results were compared with surveys made in North Dakota (Gordon, 1965) and Florida (Young, 1954) as well as Minnesota (Gundersen, 1971). Habitat preference of aquatic beetles was the shallow, vegetated permanent marshes in open areas where the greatest number of species and specimens was found. Aquatic beetles would migrate to temporary water areas from the reservoir.

APPROVED BY THESIS COMMITTEE, MARCH 1972

Ralph W. Gundersen, Chairman

STUDIES IN LIMNOLOGY AND DIATOM ECOLOGY OF THE SNAKE RIVER AT MORA, MINNESOTA

Donald G. Kaddatz

Limnological conditions and river bed diatoms were studied in the Snake River at Mora, Minnesota, from June 6, 1971 to June 24, 1972. The physical and chemical conditions, attached diatom populations, and the possible effects of treated sewage effluent from Mora upon these factors were examined.

Sampling stations were established above and below the sewage outfall. River discharge flow, temperatures, and turbidity measurements were taken. Concentrations of dissolved oxygen, alkalinity, hardness, hydrogen ion concentration, ortho and total phosphate, nitrite nitrogen, nitrate nitrogen, ammonia nitrogen, silica, chloride, sulfate and free carbon dioxide were determined.

River bed diatoms were collected from experimentally submerged glass slides held in position by substrate block samplers. Population cell densities were enumerated from sedimentation chambers using an Inverted research microscope.

A mean annual discharge flow of 357.9 cfs was observed. River discharge ranged from 70.7 to 2,736 cfs and was observed to fluctuate with precipitation and meltwater runoff. Water temperatures ranged from 0 to 23°C. Dissolved oxygen tended toward 100% saturation. Highest concentrations were observed in the ice-free, cold water periods. Total alkalinity ranged from 35 to 190 mg/l. No hydroxide or carbonate alkalinity was observed. The range of pH values was 7.0 to 8.42. The river was found to be rich in inorganic nutrients. The sewage outfall at Mora was found to add considerable amounts of phosphate to the river. Mean annual orthophosphate concentrations of 0.08 mg/l above, and 0.44 mg/l below the sewage outfall were observed. Total phosphate concentrations ranged from 0.1 to 0.32 mg/l above the outfall and 0.15 to 1.20 mg/l below the outfall. Nitrate nitrogen ranged from 0.09 to 0.6 mg/l above the outfall and 0.11 to 1.0 mg/l below. Ammonia nitrogen was observed to be present in high concentrations (2.0 mg/l) at all stations. Silica ranged from 8.0 to 32.5 mg/l and exhibited seasonal variation.

Twenty genera and 48 species of diatoms were collected. The most common (% frequency) species observed were as follows: Cocconeis placentula, Gomphonema acuminatum, Navicula cryptocephala, N. salinarum, Achnanthes lanceolata, Cymbella ventricosa, Synedra ulna, Nitzschia dissipata, N. palea, Diatoma vulgare, and Melosira varians. Peak population densities were recorded in June (1819 cells/mm²) and October (2056 cells/mm²). Seasonal variation in species populations were observed. Natural diversity of species populations occurred above and below the sewage outfall at Mora.

APPROVED BY THESIS COMMITTEE, FEBRUARY 1973

Keith M. Knutson, Chairman

*ENVIRONMENTAL FACTORS AFFECTING THE LABORATORY SEX RATIO
AND REPRODUCTIVE ABILITY OF MACROCHELES PERGLABER
(ACARINA: MACROCHELIDAE)*

Lawrence L. Legatt

PROBLEM: Among the natural agents helping to control house flies is Macrocheles muscaedomesticae (Scopoli), and several related species, which are predacious on the eggs and larvae of muscoid flies. While the degree of control exerted by these mites is certainly significant, it could be better, and several attempts have been made at increasing the reproductive rate or predation rate of these mites. The objective of this study was to test the effect of three environmental variables (temperature, density and diet) on the sex ratio and reproductive ability of Macrocheles perglaber, a species closely related to M. muscaedomesticae. The females have been reported to be better predators than the males, and a highly female-biased sex ratio would be expected to lead to increased predation.

PROCEDURE: The procedure used was to prepare cultures differing only in the variable being tested.

In the temperature experiment, five adult female mites were added to each container. One pan was incubated at 28 C and another at 33 C.

Density was tested for its effect on the sex ratio by adding five adult female mites (low density) to one pan, and 20 adult female mites (high density) to another pan.

Finally, three diets were tested (one per pan): 1) house fly eggs only, 2) nematodes only, and 3) both fly eggs and nematodes. Five adult female mites were added to each pan.

After eight days of culture, equal-sized samples of the culture medium were placed in small Berlese funnels and the mites driven down into 50% alcohol. The sex of each mite extracted was recorded and corresponding means were tested for significance using the F-test.

FINDINGS: The only treatment producing a significant difference in the sex ratio was temperature ($p < .01$), with 33 C producing the higher percentage of females. With further testing, this result might be used in large-scale laboratory cultures for mass-release programs.

Also noted was a significant difference in the total number of mites extracted in all three treatments. The 33 C culture produced more mites than the 28 C culture. The low density culture produced more mites than the high density culture. The diet of nematodes alone yielded far fewer mites than either of the other two diets.

APPROVED BY THESIS COMMITTEE, MAY 1974

John H. Peck, Chairman

*INTERACTION OF A BREEDING PAIR OF BALD EAGLES WITH SUB-ADULTS
AT SUCKER LAKE, MICHIGAN*

James P. Mattsson

Bald eagle behavior was observed during 1972 and 1973 in Upper Michigan at Sucker Lake, an area where sub-adult bald eagles have been reported to congregate in large numbers during the summer months.

In 1972, a resident adult pair produced no young and territorial defense interactions were not observed. In 1973, two young were produced and territorial defense interactions with six sub-adults and one adult bald eagle were observed. Territorial defense interactions with other species were not observed. The area defended around the nest was estimated to be 155 hectares (383 acres).

In contrast to 1972, adult territorial behavior limited sub-adult numbers, fishing activity, fishing locations, and perching range at Sucker Lake in 1973.

Two young bald eagles fledged in 1973, remained within the area defended by their parents, and were not seen in the study area after 20 September, 1973.

Territorial defense by the resident adults was not seen after 10 September, 1973.

APPROVED BY THESIS COMMITTEE, JUNE 1974

Alfred H. Grewe, Jr., Chairman

A SURVEY AND DISTRIBUTION STUDY OF THE CYPRINID MINNOWS (FAMILY CYPRINIDAE) IN THE MONTICELLO REGION OF THE MISSISSIPPI RIVER

Ralph O. Morgenweck

FINDINGS: A total of 7,248 fish, representing 15 species, were seined in 1970. Twelve species were minnows and darters. Darters were grouped with the minnows. The fish were taken from two stations located upstream from the Monticello Nuclear Powered Electricity Generating Plant and from four stations downstream.

In order of decreasing abundance, the minnow species were: bigmouth shiner, spotfin shiner, sand shiner, bluntnose minnow, johnny darter, horny head chub, longnose dace, common shiner, spottail shiner, blacknose dace, creek chub, and golden shiner.

The majority of spotfin shiners formed annuli in May while the majority of individuals of the other species formed annuli in June.

A comparison of age and total length between males and females of a species was made for all species except blacknose dace and golden shiner.

A plot of the number of developed eggs against the total length for the four most abundant species showed that a direct relationship between the two variables existed.

The food analysis showed that the percent of occurrence of dipterans in minnow stomachs was greatest of all insect orders. Trichoptera followed Ephemeroptera in order. Individuals of other insect orders were incidental food items. Larval stages were most often consumed by all species except the common shiner which showed a greater preference for adults. Diatoms, plant remains, algae, inorganic materials, and organic materials were incidental food items for all species except the bluntnose minnow and sand shiner. They fed actively on the bottom debris.

APPROVED BY THESIS COMMITTEE, JULY 1971

Alfred J. Hopwood, Chairman

RECOLONIZATION OF MACROINVERTEBRATES ON ARTIFICIAL SUBSTRATE SAMPLES IN THE MISSISSIPPI RIVER NEAR MONTICELLO, MINNESOTA

Jane Marie Nemanick

A sampling program was set up to determine the rate of colonization of invertebrates in relation to a heated discharge in the Mississippi River near Monticello, Minnesota. Weekly relationships of numbers, weights, and taxonomic composition were used to estimate growth rates and population changes. Measurements of depth, current velocity, and water quality were recorded to determine their influence on invertebrate populations. Invertebrate sampling was done with artificial substrate samplers, a design found to be reliable in the current-depth situation of the study area.

Artificial substrate samplers were concrete blocks with a surface area of .3 square meters. Four blocks made up a station, and five stations were placed at each sampling site. Two sampling sites were maintained, one above (Control) and one below (Experimental) the heated effluent of a nuclear generating power plant. After the five stations were placed at each site, one station from each was recovered every seven days. Samples of 7 to 35 days exposure time made up one sampling cycle. Sampling cycles were conducted in 1971 from July 12 to November 16 and in 1972 from April 15 to July 21.

Organisms were identified to genus and grouped into three orders. The composition of the sampled population at site C was 47% Trichoptera, 14% Ephemeroptera, and 33% Diptera. At site E the population was 64% Trichoptera, 9% Ephemeroptera, and 24% Diptera. Trichoptera were more prevalent at site E than at site C. Ephemeroptera and Diptera were more prevalent at site C. Growth rates based on numbers and weights for each 35-day cycle were compared. Factors affecting growth rates were temperature, season, and life cycles of the organisms.

APPROVED BY THESIS COMMITTEE, MARCH 1973

Alfred J. Hopwood, Chairman

FLUORESCENT DYEMARKING OF CYPRINID MINNOWS (FAMILY CYPRINIDAE) AND OTHER SMALL FISH FOR POPULATION STUDIES IN THE MISSISSIPPI RIVER NEAR MONTICELLO, MINNESOTA

John D. Ott

A total of 7,599 fish were seined from the Mississippi River, of which 6,933 were cyprinids representing 13 species in seven genera. The other 666 fish were from the sucker, perch, sunfish, and trout-perch families. The fish were seined from four stations above the heated water discharge of the Monticello nuclear power plant and four stations were below the discharge. Sampling was conducted from June 1972 to July 1973.

A fluorescent dye powder sprayed by compressed air was used to mark the fish. Marked fish were identified and counted upon recapture by viewing them in a dark-box under longwave ultraviolet light. The ultraviolet light caused the dye on the marked fish to fluoresce. The marking technique produced an average of three percent mortality due to one marking. This was considered a low mortality. Larger fish survived the marking technique significantly better than did smaller fish.

All counts of fish in the releases and recaptures were made from photographic negatives taken of the fish while they were held in a shallow tray of water.

An estimate of the population size and a confidence interval for the estimate were calculated from the mark-recapture data. A one hour waiting period between release and recapture yielded successful results while recapture attempts made 24 and 48 hours after the release were unsuccessful. Multiple mark-recapture trials conducted hourly, for up to four hours, produced the greatest accuracy and the best confidence intervals.

Changes in the population size estimates were influenced by changes in the habitat of the minnows. Increased current velocity and restricted habitat functioned to reduce the population in an area.

A rank correlation of the species composition from 1970 and this study was calculated and no significant change could be shown due to the heated water effluent from the power plant.

APPROVED BY THESIS COMMITTEE, DECEMBER 1973

Alfred J. Hopwood, Chairman

SOME ASPECTS OF GRACKLE, DOVE, AND ROBIN NESTING IN A CONIFER PLANTING IN STEARNS COUNTY, MINNESOTA

Owen L. Schmidt

The dove production, spatial location of grackle, dove, and robin nests, and dove use of other bird nests was determined at a conifer planting in Stearns County, Minnesota.

Ninety-two dove nesting attempts averaged 1.3 fledglings per nesting attempt for a production rate of 24.2 doves per acre. These rates of nest success and production per acre compare favorably to the rates in other studies where there were no large numbers of nesting grackles.

Doves preferred blue spruce trees for nesting and generally nested in the lower half of trees. Dove nesting sites averaged 93 percent overstory density. The forest densiometer was used to determine percent canopy cover for nest sites.

Grackles did not prefer a particular tree species and generally nested in the upper half of trees. Grackle nesting sites averaged 82 percent overstory density.

Robins preferred blue spruce and shelterbelt trees and generally nested in the lower half of trees. Robin nesting sites averaged 89 percent overstory density.

Doves nested on grackle and robin nests in about the same proportion as on their own nests. Dove nesting attempts on grackle and robin nests averaged lower in the tree and had a greater overstory density than average grackle and robin nests. Doves were more successful per nesting attempt on grackle and robin nests than on their own nests.

Most dove nest sites were used once. Those nest sites used two and three times had higher percent overstory density than those used once.

APPROVED BY THESIS COMMITTEE, JUNE 1973

Alfred H. Grewe, Jr., Chairman

A TAXONOMIC STUDY OF THE AQUATIC AND MARSH VEGETATION OF MEDICINE LAKE, HENNEPIN COUNTY, MINNESOTA

David G. Swanovich

PROBLEM: Medicine Lake, the subject of the study is located in Plymouth Village, a suburb of Minneapolis, Hennepin County, Minnesota. The main intent of the study was to taxonomically collect and identify various aquatic and marsh plants in and adjacent to Medicine Lake.

The lake has geological deposits related to the Des Moines Lobe till and outwash from the Keewatin Center of the Wisconsin glaciation. The soils of the area consist of marsh which is mostly peat, and loam having gray to gray-brown podzolic characteristics. A blue line map shows the soil associations of the area. Temperature variations greatly fluctuate with normal temperatures for the winter months being 15° F. and 70° F. for the summer months. The average seasonal snowfall is 40 inches. Sixty five per cent of the annual precipitation comes as rain.

The lakeshore is composed of approximately three hundred single family structures, five resorts, convalescence home for three hundred participants, high school, light industry, public beaches, and undisturbed wooded areas. A gradual increase in fertility of the lake has occurred over the years, according to the Minnesota Department of Natural Resources. Likewise, local residents have reported an increase in algae blooms over the years. In 1971 district sanitation and rain sewage system was completed and all parties have connected to this system with the exception of the convalescence home and several residents along the north shore. Aquatic vegetation was present in moderate to very abundant amounts in the littoral zones.

The lake is a source of recreational activity for many of the area people. Water related sports, fishing, and snowmobiling are the most common. The educational value is centered on the communities found in the woodland, marsh, and lakeshore habitats. Recently, a light industrial complex has been built near the lake. This location was chosen for nearness of rail and highway transportation routes.

The first phase was to divide the lake into four sections as it is 8.9 miles in circumference for the purpose of plant collection. Upon completion, the zonation of the aquatic vegetation from floating to emergent, spanned a distance such that a pair of hip boots was satisfactory to obtain the specimens. When the bottom was too soft, a boat was used. In order to collect the entire plant, a digger was necessary. These plants were placed into a heavy gauge plastic bag for temporary storage. The specimens were collected from July 21, 1971 to August 24, 1971 and during the summer of 1972. A customary plant press and dryer were employed for drying and preservation. Once preservation was complete, the plants were grouped into floating, submerged, and emergent vegetation.

CONCLUSIONS: This study was taxonomic in nature but ecologically, Lemna spp., Nymphaea odorata, and Nuphar variegatum were found as floating aquatic indicators; Chara vulgaris, Ceratophyllum demersum, Myriophyllum spicatum, and Potamogeton spp. as submerged aquatic indicators; Scirpus validus and Typha latifolia were indicators of emergent vegetation. Marsh vegetation was found to contain twenty-one species of Gramineae, and six of Labiatae. Members of Salicaceae were found in greatest abundance and diversity when compared to other trees. At present the study provides an inventory of one-hundred-and-nineteen different species found in forty-two families. The foregoing plant specimens have been deposited at the herbarium of St. Cloud State College, St. Cloud, Minnesota.

APPROVED BY THESIS COMMITTEE, AUGUST 1972
Lester E. Lindstrom, Chairman

BANK AND ROUGH-WINGED SWALLOW USE OF THE MISSISSIPPI RIVER NEAR MONTICELLO, MINNESOTA

Stephen V. Thrun

A program of field observations was devised to determine the extent of use of the Mississippi River near Monticello, Minnesota, by bank and rough-winged swallows. The study area extended from one mile above a nuclear-powered electricity generating plant to three miles below the

plant. Field work was initiated in June, 1971, and terminated in September, 1972. Swallow colonies in river banks were inspected and various parameters were recorded. Birds were observed during nesting and fledging periods to determine behavior. Swallows were mist-netted and banded to determine ranges in hatching and fledging dates and to determine the size of the local breeding swallow community. Band recapture data for 1972 indicated a dispersal of birds banded in 1971 and a marked habitat preference. Post-fledging data indicated a marked preference for foraging over a rapids upstream of the power plant and for perching on transmission wires near this rapids. The normal operation of the power plant did not appreciably alter the usage of the river by bank and rough-winged swallows.

APPROVED BY THESIS COMMITTEE, MAY 1973

Alfred J. Hopwood, Chairman

A FIVE YEAR STUDY OF THE RELATIONSHIP BETWEEN WATER TEMPERATURE AND GROWTH RATE IN CATOSTOMUS COMMERSONNII

William Whiting

FINDINGS: The common white sucker (*Castostomus commersonnii*) is the most valuable artificially reared bait fish in Minnesota. The major problem of fish hatchery operators is predicting when their new crop of suckers will reach a saleable size. Research by other workers indicates that the growth rate of fresh water fish species is closely correlated to water temperature. The purpose of this study is an attempt to develop a method of predicting growth rate of the white sucker by measuring and graphing day-degrees of water temperature against known fish growth rates. This graph can then be used to predict the growth rate of future crops. Twenty-two rearing ponds were involved in the study. After five years of research six of these ponds with the most complete data were selected for final analysis. The fish growth rate was calculated by sampling each pond with a small minnow seine at approximately thirty day intervals from the time of planting until the time of harvesting. The mean sample size for each pond was calculated after each sampling period. The growth data of all ponds for a given year were then graphed with the cumulative day-degree data of the same period. Temperature readings were recorded in the same centrally located pond with a thermograph throughout the five year period. The technique used was to convert water temperature into daily day-degrees by taking the sum of the maximum and minimum water temperature for a 24 hour period and dividing by two. This daily day-degree temperature was added to the sum of the previous days to create a cumulative day-degree record that could be graphed. Numerous field sampling problems were encountered due to such things as pond vegetation, foreign species contamination, chemical contamination, stocking rates, drought, and flooding which caused many of the original ponds to be removed from the study. After five years analysis, the data indicated that environmental factors prevented accurate prediction of growth rate in a given pond but that a five year mean cumulative graph of day-degrees and growth rate could be used to accurately predict the growth rate of a year's crop of fish.

APPROVED BY THESIS COMMITTEE, AUGUST 1972

John F. McCue, Chairman

ENGLISH

MARK TWAIN AND EDUCATION

Douglas J. Berg

PROBLEM: In his writings, Mark Twain commented on nearly every conceivable institution present in his day, sometimes extensively, sometimes sporadically. On education, Twain said little in either his fiction or nonfiction, yet the school scenes from The Adventures of Tom Sawyer are strongly remembered by all readers of his work. Since this is true, the purpose of this investigation is to examine Mark Twain's life and writings in order to determine how he felt about public education and if he seemed to have a philosophy of education.

PROCEDURE: The investigation began with a study of Mark Twain's life in order to determine the extent of his early education, influences that school may have had on him, and influences of his worldly education. This study was followed by an investigation of his nonfiction in order to determine his feelings on education and to discover whether he ever developed a philosophy of education. Last, a number of his works of fiction were analyzed in an attempt to discover if Twain made satirical comments on education and to see if he used a theory of education in developing some of his fiction. This analysis revealed that although Twain never wrote a major work entirely devoted to education, he was concerned with it and had definite feelings and ideas about it.

FINDINGS: In Mark Twain's newspaper articles, essays, and travel books, he is extremely critical of school boards and school officials for making schools dull, confining, frustrating places. He is always supportive of the children. In The Adventures of Tom Sawyer and The Adventures of Huckleberry Finn, two of his works of fiction which contain school scenes, he makes numerous satirical remarks on corporal punishment, lazy, tyrannical schoolmasters, and the general oppressiveness of the school atmosphere. He also uses the school as a structural unifying device in Tom Sawyer, The Prince and the Pauper, A Connecticut Yankee in King Arthur's Court, and "The Curious Republic of Gondour" dramatize his mechanistic theory of education and learning most coherently put forth in "What is Man?"

SUMMARY AND CONCLUSIONS: Mark Twain knew the value of school scenes as popular material. He used them for this purpose, but, in doing so, he also revealed that he felt education should be primarily concerned with developing the noble, humane attributes of man. The ideas presented in his works continue to challenge the hypocrisies of our institutions, including our schools.

APPROVED BY THESIS COMMITTEE, DECEMBER 1973

Robert L. Coard, Chairman

SYMBOLISM IN THE POETRY OF W.S. MERWIN

Mary E. Bovee

The poetry of W.S. Merwin is enjoyable both for its imagery and for its intellectual explorations, and a basic knowledge of his symbolism helps the reader understand the latter of these two facets. Merwin uses mirrors to symbolize his innermost being, that part of him which feels and intuits before his conscious mind forms any thoughts. This symbol does not appear throughout Merwin's seven books, but it is often found in his subjective and soulsearching poetry. Although shadows do not symbolize one specific idea or concept, they reveal a lot about Merwin's attitude toward death because they represent several different aspects of death and a possible afterlife. Merwin includes hands in much of his imagery, and their role is threefold: hands may symbolize love, fate, or creativity. Wind reflects the atmosphere or mood of many poems. It also brings omens which foretell the future and symbolizes the donee of an artist's creativity. Merwin's intrigue with death may be a reason for his extensive description of mock-death experience. This timeless, lifeless state of being is symbolized by stones.

APPROVED BY THESIS COMMITTEE, JULY 1972

John R. Bovee, Chairman

AN AMERICAN DREAM: AN EXISTENTIAL JOURNEY INTO THE SURREAL

Karsten O. Braaten

Norman Mailer began developing an existential philosophy in his early works. Existential concepts are evident in "A Calculus at Heaven," 1942, The Naked and the Dead, 1948, Barbary Shore, 1951, and The Deer Park, 1955. An American Dream, 1964, is Mailer's most complete fictional exegesis of his existential philosophy.

While much of Mailer's existentialism is similar to the philosophical concepts of

Sartre, Kierkegaard, Buber, and Nietzsche, Mailer also develops a unique definition of an American existentialist. "The White Negro" is the most complete explanation of Mailer's American existential philosophy. In it, Mailer explains his existentialism which emphasizes the "mysticism of the flesh" (characterized by erotic sex) and defines his existentialist man as a psychopath who will murder, rape, and lie in order to further himself. The psychopath's awareness of the "enormous present" allows him to experience life more fully than the "salauds" who conform to society's rules and who never face death as an everyday experience.

Rojack in An American Dream is Mailer's American existentialist man who, because he murders his wife, constantly must outwit restricting forces in American society and who takes an existential journey in search of salvation. Rojack lies to save himself from the electric chair; he seduces women in his search for the "apocalyptic orgasm" which, according to Mailer, will reveal the true value of love and of communication between the sexes; and he defeats the symbol of the Devil (B. Oswald Kelly) and of the Devil's corrupting influences in American society. Rojack escapes the plague that, according to Mailer, affects American society by maintaining his courage in the moment of crisis and by shedding his ties with the conventional aspects of American society. In the end, Rojack heads for Yucatan because he was not strong enough to defeat all of the corrupting forces in America.

Because An American Dream is also a harsh criticism of American society, Mailer uses techniques that are accepted by many surrealist writers in order to shock the reader into a greater awareness of the boredom and conformity engendered by American society. Thus, An American Dream serves the surrealist's purpose as a means, and not merely as an end, by which the writer attempts to further the search for more self-knowledge.

Mailer adopts the surrealist's use of the erotic, the sensual, and the grotesque. Mailer uses the erotic when he has Rojack "bugger" the maid, Ruta; Mailer uses the sensual when he develops an adolescent-like love affair between Cherry and Rojack; Mailer uses the grotesque when he has Rojack fantasize upon the possibility of eating Deborah's dead body.

Because the search for love is paramount to the surrealist's desire to find redemption, Mailer characterizes an ideal relationship between Cherry and Rojack. And, from this relationship, Rojack comes closest to finding redemption. The relationship between Rojack and Cherry is also founded on "chance" meetings. According to the surrealists the concept of chance is significant because "chance" often presents an opportunity to one to change his life and, thereby, achieve salvation.

Mailer also breaks from some of the most accepted practices that have been developed by novelists. Instead of emphasizing plot and character, Mailer presents primarily one-dimensional characters and a simple plot.

Rojack in An American Dream is the characterization of Mailer's existential man who commits the ultimate act of power, murder, and who then must face death in order to show that he has the courage to continue living. Mailer uses surrealist techniques as a means to give greater force to the social criticism and to the philosophical concepts embodied in An American Dream.

APPROVED BY THESIS COMMITTEE, NOVEMBER 1971

Armand E. Falk, Chairman

THE HERO IN THE WILDERNESS

Lois Mary Braaten

Plato defined the universe in terms of the "One" and the "Many." The abstract, universal "One" he called the Idea; whereas material "imitations" of the perfect, single Idea he labeled the "Many." Analogous to this philosophical concept of Plato's is Jung's psychoanalytical concept of the archetype. A single "monomyth" is basic in all literature. Jung labeled the parts of man's psyche the personal unconscious, which is unique in each individual, and the collective unconscious, which is universal—that is, archetypal.

Although the archetypes are essentially unconscious, they can become conscious secondarily. Archetypes can symbolize characters, such as the Hero, or "Patterns," such as the Night-Sea Journey.

The mythological hero's journey begins when he crosses the threshold of adventure and then "journeys through a world of unfamiliar yet strangely intimate forces. . . . When he arrives at the nadir of the mythological round, he undergoes a supreme ordeal and gains his reward." The hero must then leave the "transcendental powers" behind in the "kingdom of

dread" and reenter the "City" with his elixir.

Two spiritual heroes, Moses and Zadok, had similar adventures in the Wilderness. Because they both spent most of their lives in the desert--the wilderness--with their followers, they reached "the nadir of the mythological round" at the top of a mountain, which represents a state of "increased consciousness." Christ developed his "ego-consciousness" and became aware "of his own strengths and weaknesses" during his stay in the wilderness. Muhammad's Night-Sea Journey took place within the womb of a cave. Each of these heroes passed the tests in the Wilderness that "equip [ped] him for the arduous tasks with which life" in the "City" would confront him. Moses gave the world the Decalogue; Zadok led his nomads to a military victory; Christ and Muhammad offered men a gospel of love.

Jung contends that "the hero figure is an archetype, which has existed since time immemorial." The four stages in the development of the concept of the hero are comparable to the stages of an individual's development. Radin labels the four stages the Trickster cycle, the Hare cycle, the Red Horn cycle, and the Twin cycle.

In all hero tales, there exist consistently repeated characteristics, such as a miraculous birth, an early proof of superhuman strength, and a period of obscurity.

Achilles' Night-Sea Journey consisted of his withdrawal from the war. His Wilderness was his tent on the seashore. He returned to the society of men only after he had gained his due of honor from the gods as well as from his fellow warrior-princes.

Berta the Debonaire passed through her tests and ordeals in a forest--a symbol of the female principle. The tales of Achilles and Berta both belong to the Twin cycle stage of the hero myth. Berta's femaleness also brings to light the concepts of the anima and the animus. The process of individuation is complete only when these two aspects of the psyche "have learned to live at peace and to complement one another." After Berta is freed from the father and mother images, she is able to "awaken" to her role as a wife and a Queen.

The characteristics uncovered about one hero are equally valid when applied to the other heroes within this study. Any examination of the Hero in the Wilderness must analyze his Night-Sea Journey as well as his Rebirth from the Wilderness. Moreover, the archetypal hero--the unconsciousness--will continue to emerge from the consciousness of the City because men forever fail to learn the lesson taught by the returning Hero.

APPROVED BY THESIS COMMITTEE, MAY 1972

Alfred E. Lefa, Chairman

THE CONFLICT BETWEEN HEROIC STATURE AND LOVE: A CATALYST IN TRAGEDY

Gertrude Elliot

ABSTRACT: Tragedy can result from an inner conflict between two subjective values, such as the individual's heroic stature and his love for another. Although the qualities that are deemed heroic may vary with the culture, the heroic stature has remained fairly constant for centuries and is characterized by its egocentric commitment to a subjective ideal and by a concern for the self. Although the substantive values are also culturally determined, love, either familial, fraternal, or romantic, consistently has been one of the highest values. Despite its possibility of being an expression for egocentricity, love is essentially altruistic because it involves a concern for another.

The egocentricity possible in familial love, the moral and legal obligations, and the natural love between family members provide a basis for conflict between the demands of love and the heroic stature. In early literature, although divine intervention might precipitate the conflict, the heroes had options that could affect the consequences. Later, when impartial fate and nature were considered a force, the hero became totally responsible for his acts. In the familial relationship, conflict may arise between age trying to retain its dignity and authority and youth anxious to assert its maturing heroic stature. Also, an aging ruler's undue concern for one of his heirs may interfere with the rights of another heir, arousing latent jealousy or greed. Premature surrender of power to insure orderly succession may reduce the ruler to a symbol of power and make him dependent on the love of his heirs to retain his heroic image.

Fraternal love is more ideal than familial love because it is bound by no legal or moral ties. The vassal-lord love relationship is most precarious because a ruler's act against his subject may also strike at their love relationship, and a hero's legitimate concern for his own stature may be misconstrued as disloyalty. Although fraternal love between peers is simpler, conflict may arise through the hero's commitments, rash promises, or threats to the ego.

Because fraternal love's altruistic nature requires a denial of self that the high egocentricity of the hero cannot give, the heroic stature-fraternal love conflict usually ends in a sacrifice of the love.

In later literature, romantic love introduces problems of jealousy, male-female roles, and chastity. If the woman is heroic, she may complicate the relationship by insisting on maintaining her own heroic image, thereby challenging the hero's stature. If she is a ruler, concern over male-female roles arises: she must maintain the dignity of her self and her office; the hero must satisfy his natural ambition and his need to be dominant. Because of jealousy, the beloved may demand a proof of love that jeopardizes the hero's stature. Also, the beloved may use the love as a weapon to achieve her ends.

Absence of conflicts between heroic stature and love in modern tragedy is owing to the complexity, size, and impersonalization of modern society dwarfing man's significance and making assertion of the heroic stature more difficult. Also, certain philosophies and sciences have changed society's attitude toward responsibility, an important element of the heroic stature. Values have also undergone some change, notably sexual attitudes affecting love. Because of these changes, society tends to see man as less grand, hence less tragic. The recent concern for man's place in our technological society suggests a new emphasis on man's worth as an individual.

APPROVED BY THESIS COMMITTEE, JUNE 1972

Jonathan Lawson, Chairman

GEORGE BERNARD SHAW, THE PLAYWRIGHT, AS CRITIC OF ORGANIZED RELIGION

Kathleen A. Ellis

Shaw saw many hypocrisies in the religion of his day. As a young man he rejected the Protestant religion of Ireland which had been taught to him as a way of life as well as the only form of worship. But Shaw was not satisfied with merely denying or degrading. He suggested a replacement for what he would remove. The theory or philosophy which Shaw offered as a replacement for the religion of the day was called Creative Evolution. Briefly, it is the belief in a Life Force which is continually struggling to improve upon itself in the quest for perfection. It is this philosophy which can be found running through the religious plays of Bernard Shaw.

Shaw saw himself in the very important role of prophet and gadfly to make each person aware of his own individual importance in the upward struggle of the Life Force.

Dick Dudgeon, in The Devil's Disciple, portrays a man who jeopardizes his life in order to save another man. In doing so, he takes his place in the upward path of the Life Force.

Don Juan, in Man and Superman, thoroughly explains Shaw's philosophy of Creative Evolution and the choices each person must make in order to improve himself and therefore mankind.

Blanco Posnet, in The Shewing-Up of Blanco Posnet, shows how a scoundrel can choose to become a good man, thereby indicating to the audiences how they, too, could contribute to the struggle of the Life Force to advance constantly.

Joan, in Saint Joan, is the culmination of Shaw's religious characters. In spite of constant harassment, Joan chooses to follow God. She pays with her life, but she has done her best and so has given impetus to the Life Force's upward path.

Shaw's plays were his pulpits to preach his philosophy of Creative Evolution, and the protagonists in his plays are the characters who spread the message. In each one there is a bit of Shaw.

APPROVED BY THESIS COMMITTEE, MARCH 1973

Paul E. Cairns, Chairman

THE QUESTION OF UNITY IN MALORY'S LE MORTE DARTHUR

Philip R. Gulstad

ABSTRACT: The discovery of an unpublished manuscript of Thomas Malory's Le Morte D'Arthur at Winchester College in 1934 has produced conflicting theories regarding the question of unity within the work.

Basing his argument chiefly on a comparison of the Winchester MS. and William Caxton's edition, which does not contain most of Malory's colophons at the ends of the tales, Eugene Vinaver theorizes that Malory meant his romances as eight separate tales, not as one work.

D.S. Brewer, Charles Moorman, and a number of contributors to a collection of essays entitled Malory's Originality all oppose Vinaver's view, offering various pieces of evidence to support their claim of unity in the work.

Moorman's contention that Malory wrote a single, unified history of Arthur's reign, intending it to convey the theme, "The rise, flowering, and downfall of a well-nigh perfect civilization," seems the most acceptable of these theories. He suggests that Malory interwove three leitmotifs—Lancelot and Guenevere's adultery, the Grail quest and its failure, and the feud between the families of Lot and Pellinore—throughout the story as a means of carrying out the general theme.

In addition to the evidence produced by Moorman, it would seem that Malory used recurring plot structure and repetitions of incidents and stylistic devices to strengthen the unity of his work.

The "Tale of Gareth" and the "Tale of La Cote Mal Taile" have a number of striking similarities that encourage a comparison between the two stories. This comparison reveals the superiority of Gareth and enhances his role as the epitome of Round Table chivalry. There are a large number of parallels between the love triangles of Tristram, Isode, and Mark and of Lancelot, Guenevere, and Arthur that bear out the theme of tragedy and help provide structural unity to the work.

The natures of a number of characters, including Kay, Brewnis Sans Pity, Mark, and Lancelot are developed partially through similar incidents involving these characters in different parts of the work.

There are numerous parallel incidents throughout Le Morte Darthur, covering such topics as curses, acts of penance, battle strategy, renewed strength by nearly-defeated knights, battles between friendly knights traveling incognito, customs of castles, enchantments, and challenges by knights stationed at wells or bridges. These parallels, along with recurring stylistic devices, produce a feeling of uniformity within the work. This uniformity of structure and style, complemented by apparent thematic unity, produces a strong argument for overall unity in the work.

APPROVED BY THESIS COMMITTEE, NOVEMBER 1972

John Melton, Chairman

JOHN STEINBECK AND THE ISSUE OF HONESTY: A STUDY OF SELECTED NOVELS

Nancy Lowe Gundersen

John Steinbeck's autobiographical writings and his novels are convincing evidence that he was always an honest man and that he valued honest people. Yet some of the causes that he supported and some of the people whom he liked and admired were not honest. Steinbeck wrote a number of novels based on his own particular experiences in which he seemed to be explaining his tolerance for other codes of behavior.

In one of these novels, In Dubious Battle, he discussed California's migrant workers and the efforts radicals were making to organize them. Steinbeck demonstrated that the migrants needed this unification in order to be strong enough to demand fair wages. However, he was obviously disturbed by the manipulative techniques that organizers used to bind groups of workers together, while at the same time he believed that these techniques were necessary. He decided to condone this dishonesty.

Steinbeck's belief in honesty was also challenged by some dishonest lower-class alcoholics whom he met and liked and about whom he wrote three novels, Tortilla Flat, Cannery Row, and Sweet Thursday. In all of these books Steinbeck accepted a style of dishonest living, even though in two of the books he created a hero who was an exceedingly honest man.

In the last two novels of his career Steinbeck reexamined the issues of political and social pragmatism, alcoholic dishonesty, and middle-class morality and came to some new philosophical conclusions that were much more in accordance with his own personal values. In both The Short Reign of Pippin IV and The Winter of Our Discontent he seemed to be accepting and

advocating principles of simple honesty and individual trustworthiness. He was no longer willing to accept the argument that dishonesty might occasionally be good policy.

At the same time in these last novels, Steinbeck faced the difficulties a person has living a good life in the midst of a society that seems to reward the dishonest act, while praising virtue. Steinbeck saw clearly the price one might be asked to pay in order to live by the code of honesty that he was advocating.

Steinbeck's last two novels are a fitting resolution of his earlier philosophical problem: "Is honesty always a good thing?" Steinbeck answered "yes."

APPROVED BY THESIS COMMITTEE, MAY 1973

John R. Bovee, Chairman

AN EXAMINATION OF NESTOR THE AGED COUNSELLOR IN THE ILLIAD, HIS INFLUENCE UPON THE POEM AND AS A MODEL FOR ENGLISH LITERATURE

David Robert Gustafson

ABSTRACT: An examination of Nestor, the aged counsellor in The Illiad, reveals what Homer himself regarded as a "heroic" warrior. Nestor's character is gradually revealed as he responds to each new incident in the attempt to defeat Troy. The basic outline of Nestor's character is that of the wise old man who, although he is too old to be an active warrior, contributes his experience and garrulous advice to the Greek cause. His skill as a horseman, his youthful exploits, and even his possessions are admired and respected by Greeks and Trojans alike. He embodies the ideals of eloquence and valor, but old age has tempered his effectiveness and forced him to accept new responsibilities.

In Richmond Lattimore's translation of The Illiad Nestor is frequently referred to as "the Achaians' Watcher." This epithet is useful in considering Nestor's function in the poem because it directs attention to Nestor's current limitations. Because of his old age Nestor is no longer an active warrior, yet his zeal and energy require him to be at the battle front. He serves the Greek army by watching the flow of battle and then offering the alternatives, the military tactics, which might be employed. Poulydamas, the Trojan warrior, is a younger counterpart to Nestor, but unlike Nestor his counseling is often disregarded. The Watcher combines some of the characteristics which are recognizable in the Chorus and Messenger of Greek drama, and may be a prefiguration of them. The emphasis is decidedly on Nestor's value as a counsellor, and it is because he is an effective counsellor that he is still remembered.

While Nestor's character is predominantly presented through his speeches, it is also developed by other techniques. Epithets, like the "Achaians' Watcher," occur regularly and stress some unique characteristic of Nestor. These epithets have a cumulative effect and aid in realization of the entirety of Nestor's shared and unique traits. Another means by which Nestor's character is developed is through the appraisal of other characters. Agememnon, Diomedes, Odysseus, Hector and others all praise him for special qualities. Perhaps the other chief means by which Nestor is portrayed is by comparison. The most extended comparison is between Nestor and Odysseus, and chiefly concerns the responsibilities of kingship and military tactics. From these three methods of character development a wider perspective can be gained than by stressing too heavily Nestor's garrulity.

There appear to be several unaccountable inconsistencies in Nestor's character. These inconsistencies seem to arise from an excessive strain on Nestor's credibility. He is excessively praised; he accepts many of Agamemnon's responsibilities; he is often overzealous; and his lengthy speeches are occasionally tenuous. The total effect of these inconsistencies suggests humor, or at least the potential for humor, in Nestor's character. Because Homer does not clearly resolve some of the aspects of Nestor's character it is not surprising that he changes slightly in the English translations of the poem.

The various translators of The Illiad have, in effect, made the poem an English poem. Familiarity with a translation, or some more indirect contact with the Homeric material, has influenced English writers to incorporate elements of the story into their own work. Nestor actually reappears in Shakespeare's Troilus and Cressida and is perhaps the model for Polonius, the aged counsellor in Hamlet. Other Nestor-like characters can be seen in Uncle Toby, in Sir Walter Scott's Waverley, Natty Bumppo in James Fenimore Cooper's The Prairie, and Gandalf in

J.R.R. Tolkien's The Hobbit. Clearly Nestor survives in literature as an archetype of the wise old man.

APPROVED BY THESIS COMMITTEE, JUNE 1971

Armand E. Falk, Chairman

THE RESTORATION COMEDIES OF MANNERS: MIRROR OF SOCIETY

Donna May Eng Hager

The Restoration Comedies of Manners reflect the life of the Restoration period, dating from 1660 to 1710. Restoration manners, patterned after those of the restored King Charles II, emphasized wit derived from common sense and good breeding. Charles II's love for the theater ranked higher than his love for Church, resulting in a kingly patronage never before exhibited to such degree. His interest in French theater resulted in Moliere's works having an influence upon some of the English dramatists.

The following plays are excellent representations of life of the period: The Country Wife (1675) by William Wycherley, The Man of Mode (1676) by George Etherege, The Relapse (1697) by John Vanbrugh, The Way of the World (1700) by William Congreve, and The Beaux' Strategem (1707) by George Farquhar. The characters in the plays reflect, in the main, the Restoration's concern for appropriate social behavior.

The extreme class consciousness, the courtship and marriage conventions, differing moral codes, church-going and theater-going of the Restoration period are all mirrored in the comedies. Most of the plays center around the "love-chase" and financially advantageous marriage. The Puritan ethic eventually re-emerged to restrain Restoration comedy by the end of the century.

Restoration comedy had value for the age because it provided an entertaining means for society to view their foibles and laugh at themselves. Through the wide range of human behavior viewed on the stage, the playgoer could take instruction for self-improvement, often through negative example. The Restoration Comedies of Manners mirrored the times and are still enjoyed today for their sparkling wit, humorous situations and social commentary.

APPROVED BY THESIS COMMITTEE, AUGUST 1972

Alfred E. Leja, Chairman

THE FRACTURED VISION: A STUDY OF THE NOVELS OF KURT VONNEGUT, JR.

Wayne L. James

There is a split outlook pervading the novels of Kurt Vonnegut, Jr., that is central to the development of his thought. At the same time that he suggests that the world is absurd and therefore meaningless and purposeless, he emphasizes the importance of humanitarian moral values. This split seems to have grown essentially out of Vonnegut's experience; in his early life and in his formal education, Vonnegut learned the values of brotherhood and humanitarian concern which he was never to lose, but his experience as a POW in World War Two shattered the optimism that accompanied those values. Vonnegut came to see the world as epitomized by the absurdity of the Dresden holocaust which he witnessed.

His novels, then, inevitably came to reflect his absurdist view, a view so profoundly pessimistic as to preclude any faith in man's ability to create meaning or to reform his follies. Yet, paradoxically, the novels also reflect a faith in those humanitarian values which Vonnegut learned in early life. We can see the development of the novels as based essentially on a struggle to resolve this split in his outlook.

In the novels, we see portrayals of a universe informed by absurdity juxtaposed to injunctions to love or be kind which often embody the messages of the novels. The worlds of Player Piano, The Sirens of Titan, and Mother Night, for example, are all, in their own ways, thoroughly absurd; yet the message of each concerns the value of "uncritical love" and selfless moral responsibility. The same cynical/humanitarian split is evident in Cat's Cradle, but this novel initiates a new phase in the development of this split, for the philosophy of Bokononism espoused here brings the two sides of the split together; Bokononism is based on cynical resignation, yet its purpose is strictly humanitarian. After a digression in God Bless You, Mr.

Rosewater, Vonnegut picks up the suggestions put forth in Cat's Cradle and resolves the split permanently in Slaughterhouse-Five; Billy Pilgrim achieves the perfect balance between cynical resignation and humanitarian concern. Breakfast of Champions serves as a coda to Vonnegut's achievement, for it is a chaotic collage of all that has prompted him to write and all that he has discovered through his writing. The two sides of Vonnegut's vision finally stand balanced against each other and thus the cycle of development in the novels is consummated.

APPROVED BY THESIS COMMITTEE, MAY 1974

James Lundquist, Chairman

SURREALISM AND THE NOVELS OF NATHANAEL WEST

David Lee Lavery

ABSTRACT: Surrealism was a world-wide movement which strongly influenced the art and literature of the 1920's and 1930's. Its influence in American literature and art is usually traced to such figures as Man Ray, Robert Coates, and Charles G. Finney, but in the four short novels of Nathanael West may be seen the embodiment of the Surrealist aesthetics—a philosophy which was in full scale rebellion against the confines of realism and naturalism.

Surrealism possessed certain distinguishing characteristics: 1) a supernatural atmosphere; 2) a denial of contradiction and the embracing of irony; 3) a preoccupation with mysterious imagery. As a movement, its goals were to free man's fancy, to introduce a new "aesthetics of the marvelous," and to save language from material decay. In its general philosophy, it is optimistic, its motto: "Change the world."

The tradition of Surrealism is extensive, but all of its practitioners may be classified as Romantics. West was himself deeply immersed in the Surrealist tradition. Always attracted to the bizarre and exotic in his reading, he was familiar with the work of most of Surrealism's most famous precursors. His more than amateur knowledge of art gave him a painter's perspective. His trip to Paris gave him first-hand exposure to Surrealism. Like the Surrealist, he considered Freud a source of artistic inspiration. Primarily European influenced in his thinking, he applied his style to American subjects.

Although he was considered to be a Surrealist by contemporary critics, West himself denied it. All of his novels, however, share some common characteristics: they are set in West's "peculiar half-world," perhaps best compared to the paintings of de Chirico; all seem to probe a "reality beyond reality," going far beyond simple realism; all are ambiguous and terse in style; and all are dominated by imagery which creates a sense of mystery. And although the novels become progressively more objective and didactic and less symbolic, they all contain one powerful unifying element: the presence of a "dream-dump"—a repository of the subconscious.

The most brilliant and most surreal feature in West's novels is his imagery. A comparison between it and characteristically surreal imagery as described by its chief disciples reveals West's writing to be surrealist. Springing from the subconscious, his imagery attempts to describe irrationality in precise but mysterious terms. Although it functions on a symbolic level at times, its primary effect is to give a surreal quality to the novels.

Sharing with the Surrealists a desire to transcend realism, West never shared their faith in the revolution of man's imagination. A pessimist and a sceptic, he differed from the Surrealists in tone—his was one of despair. He used Surrealism stylistically, but departed from it when necessary to fulfill his own purposes. A moralist and an intellectual, he never surrendered the effort to understand the world in rational terms, and yet his style, Surrealist influenced, triumphs, and the effort to understand is, ironically, obscured in mystery.

APPROVED BY THESIS COMMITTEE, MAY 1973

John R. Bovee, Chairman

THE DEVELOPMENT OF THE METAPHYSICAL ELEMENT IN EMILY DICKINSON'S POETRY

Jeffrey Lien

PURPOSE: The purpose of this project is to point out the metaphysical characteristics in Emily Dickinson's poetry and to show how they developed by examining her response to the

metaphysical literary influence, to the Puritan tradition, and to the cultural milieu in general.

After defining metaphysical poetry to a workable extent and listing the major seventeenth century metaphysical poets, I have examined Dickinson's direct connection with the metaphysical poets by ascertaining how much of their work she had read. I then attempt to analyze their indirect influence on her through her contact with Ralph Waldo Emerson, who was considerably influenced by the metaphysicals. The examination of the development of her style as a response to her cultural milieu follows three main threads: her family life, especially her relation to her father, her religious experiences, and the social upheavals climaxed by the Civil War. This examination finally dovetails into an analysis of the metaphysical elements in her poetry in relation to her reading, her cultural milieu and her psychological makeup.

The metaphysical element in Dickinson's poetry is very strong, although it is her own unique brand of it. It was stimulated by her direct reading of the metaphysicals, and by Emerson's influence. The main source of her metaphysical qualities, however, stems from her response to the cultural atmosphere of the time and place in which she lived.

APPROVED BY THESIS COMMITTEE, JUNE 1972

Elizabeth VanPelt, Chairman

POETS OF THE VERBAL SHRUG: THE RHYMERS' CLUB AS A LITERARY MOVEMENT

Judy M. Lundberg

ABSTRACT: The Rhymers' Club was formed in the 1890's, a decade that could well be called the Age of the Rhymers because the Rhymers poets produced some of the best lyrical poetry since the seventeenth century, immortalized the strange art of the verbal shrug, and employed techniques which anticipated those used by modern poets. Most literary historians and academic critics have, unfortunately, failed to consider the Rhymers' literary importance, but the poets constitute a movement and are a very significant bridge between the Victorians and the Imagists.

Meetings of the Rhymers' Club began in 1891 at the Cheshire Cheese, an ancient restaurant and tavern on Fleet Street. Formally organized, the Club had no rules or officers, and accounts vary concerning the meetings and the frequency of them. Members of the Club were men who ranged in age from 23 to 50 and whose personalities differed considerably. The Rhymers published two small anthologies of poetry, one in 1892 and the other in 1894. Attendance at the Club dwindled in 1894, although some of its more important members, Ernest Dowson, Lionel Johnson, W.B. Yeats, and Arthur Symons, continued to write poetry.

Ernest Dowson is often only remembered as the symbol of decadence, but he is much more than that. He is a poet, and his lyrical poetry possesses the art of the verbal shrug, the "what more can I say?" attitude. This shrug is revealed in his nature, love, religious, and life-weariness poems. Nature becomes a series of images, love becomes a subject for brooding, religion becomes a means of finding sensations, and life-weariness becomes a means of immortalizing the verbal shrug. Prosodically, Dowson adhered to full end rhyme and perfect stanzaic forms. His new poetry is characterized most by his attitude toward subject matter and theme.

Lionel Johnson's poetry is similar in many ways to Dowson's, although his poems do not achieve the fine lyric quality or master the verbal shrug. His best poetry was written during the time of the Rhymers' Club. Many of his poems are religious, and many also express the life-weariness theme. Johnson's frequent use of oxymorons, single word images, and metaphors, as well as his word economy and his attempt at a common language diction, are his stylistic strengths. Yeats, a novice poet at the time of the Rhymers' Club, was influenced especially by Johnson and Symons. Much of Yeats' early poetry also reflects the life-weariness theme, and his later work still retains the Rhymers' influence but matures into the polished verse which distinguishes him as a great poet.

The poetry of Arthur Symons, probably the best of the Rhymers', received little public attention during the nineteenth century and even less in the twentieth century. The main reason for this oversight is that his critical prose works are given primary consideration. He imported the ways of French symbolism for the English poets, defended the artist's right of poetic license by giving the term decadence respectability, and wrote "city poetry." Symons' work anticipates modern poetry because he deals with many of the same philosophical concerns as modern poets and remains the detached observer who analyzes and records urban images. Like the modern poets, he uses common language, abundant metaphors and similes,

and frequently personifies nature. The tone of his poetry is often one of irony or cold-hearted humor. His poetry and that of the other Rhymers constitutes the beginnings of a modern movement in poetry--a bridge between the Victorians and the Imagists.

APPROVED BY THESIS COMMITTEE, MAY 1972

James C. Lundquist, Chairman

THE FUNCTIONS OF CETOLOGY IN MOBY DICK

Stephen J. Mikus

Herman Melville's Moby Dick has been looked upon by some critics as being a poorly constructed novel. Much of the adverse criticism is directed at Melville's inclusion of vast quantities of whaling data. These cetological references appear to be disruptive elements that detract from the narrative. A textual analysis of Moby Dick demonstrates that these materials are not disruptive elements but that, instead, they perform necessary functions that enable the novel to attain its greatness. Melville uses the cetology to blend with the narrative chapters to develop the structure, characterization, and thematic ideas of the novel.

The novel's structure depends largely on the cetology materials to provide a unifying, realistic basis for the striking story-line. The myriad of details about different whales and life aboard a whaling ship gives an air of reality to the novel. The cetology chapters also aid Melville in such technical matters as mood control, variety, and relief.

Another contribution of the cetology is to strengthen the characterization Melville employs in the novel. Moby Dick abounds with unique characters who stir the reader's imagination. Ahab and Moby Dick are created in heroic proportions. In order to accomplish this, Melville draws on the cetology information for aid. Whaling provides a worthy occupation for Ahab and the demands of the industry also help to explain his unusual thoughts and actions. Likewise, Moby Dick's size, coloring, and actions become acceptable to the reader only in light of the cetology materials. These materials also provide ample basis for the introduction of minor characters who are vital to the narrative development as well as to the explication of the themes presented in the novel.

Cetology further aids Melville in his probing of philosophic issues in Moby Dick. Through the introduction of the cetological information, he is able to support his contention that nature is superior to man in certain ways. These same materials provide proof for another of Melville's beliefs--that good and evil can exist side by side in nature. Finally, he uses the cetology as partial explanation for his interpretation of how good and evil can exist in man.

Moby Dick and cetology are inseparable. Much of the universal appeal and the time-less quality of the novel is directly related to these materials. Without this information, the novel would be just another strange story. Instead, it has risen to the heights of literary greatness.

APPROVED BY THESIS COMMITTEE, JULY 1973

Elizabeth VanPelt, Chairman

GEORGE BERNARD SHAW, CRITIC OF THE DRAMA

Lucille E. Miller

PROBLEM: George Bernard Shaw's reputation as a dramatist is more widely known than his skill as a dramatic critic. The purpose of this study was to determine the principles which guided his criticism of the drama as literature, specifically, rather than other aspects of the drama such as acting and producing, and to assess the impact of his criticism upon the nineteenth century theatre.

PROCEDURE: The collected reviews of Shaw's dramatic criticism for The Saturday Review from January, 1895, to May, 1898, constituted the most valuable primary source for this thesis, but in addition, The Quintessence of Ibsenism, the Prefaces from Shaw's plays, his Advice to a

Young Critic, and Collected Letters also provided information on Shaw's rationale as a dramatic critic.

Comments from Shaw's contemporaries in criticism as well as more recent studies were useful in evaluating Shaw's influence on trends in the drama.

FINDINGS: Shaw viewed the drama as a vehicle for stimulating thought and conscience and explaining social behavior, a defense against "despair and dullness," but most of all as an aid in promoting the moral evolution of Man. In this latter role the theatre, in Shaw's view, was more influential than the nineteenth century church, or at least had the potential to be more influential. Thus he considered the play's philosophy extremely important. Because he believed in the power of drama to help bring an end to outmoded customs and ideals, he valued most those plays which dealt with contemporary social problems, such as the role of women in marriage. He championed Ibsen because he believed his plays fulfilled the obligations of the drama to aid social change. He attacked the well-made play, for he concluded that most dramatists became too preoccupied with following the formula established by the French dramatists and too little concerned with developing character and theme. He was often harsh and almost always audacious in his criticism of Shakespeare, since he saw in his plays what he thought to be too frequent indulgence in shallow platitudes which the casual observer mistook for admirable philosophy.

SUMMARY AND CONCLUSIONS: Shaw's criticism seems to have helped establish an audience for the problem plays of Ibsen and later for those of Shaw. His identification of the weaknesses of the well-made play were later supported by his contemporaries in dramatic criticism. His reviews of Shakespearean revivals served to help dramatic criticism break out of a mould of unquestioning worship and to adopt a more reasonable, qualified admiration for Shakespeare's genius. By employing a style characterized by lively, iconoclastic overstatement, he commanded attention for his views and added a considerable quantity of entertaining and enlightening reading to the body of dramatic criticism.

APPROVED BY THESIS COMMITTEE, DECEMBER 1971

Paul E. Cairns, Chairman

JOHN G. NEIHARDT'S CYCLE OF THE WEST IN THE STRANGE NEW WORLD: IF OUR HEARTS ARE RIGHT

Michael J. Opitz

John G. Neihardt's Cycle of the West is set along that line between savagery and civilization called by Frederick Jackson Turner the American frontier. In much American literature, the frontier traditionally symbolizes new spiritual hope: the American wilderness symbolically becomes a new Eden, complete with an American Adam. Neihardt's Cycle traces the movement of this symbol from the Adamic Mike Fink through Jed Smith, a Christ symbol rejected by his culture. The theme of spiritual hope is concluded with the massacre at Wounded Knee, the final failure of American culture to fulfill its symbolic hope.

The progression of civilization into the wilderness forces the reader of A Cycle of the West to examine that civilization. The view of our culture presented in Neihardt's work is dichotomous. On one hand, Neihardt reminds us that our past has been heroic, and that our civilization is good. On the other hand, he forces us to encounter our culture's systematic destruction of the American Indian. The existence of civilization is predicted upon the destruction of another race of human beings. Thus, Neihardt forces the reader to see white American culture as being, simultaneously, good and evil. Norman Rabkin calls this duality of literary vision tension, and Rabkinian tension accompanies the march of civilization throughout the Cycle.

As civilization marches, the Indian retreats. White culture triumphs physically, but fails spiritually. The Indian, who has failed physically, triumphs spiritually. But the spiritual implications of Neihardt's work go beyond the triumph of one culture and the failure of another. The word "cycle," taken from the circular view of the universe in Sioux mythology, indicates that all life moves in a cyclical pattern. Neihardt, through his symbolic use of this "cycle," indicates that white American culture is not without hope. The hope of the Cycle is that our spiritually bereft culture can move toward spiritual understanding.

Neihardt's cycle of narrative songs is, then, a work which fits within an important American literary tradition; it is a poetic interpretation of a period of great historical and

cultural importance, which forces its reader to examine that period morally and finally, it is a work which is not without hope for an ultimate spiritual awakening in American culture. Neihardt's hope is that, in the future, we will overcome our love of physical things and come to understand the unity and holiness of all life.

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John Melton, Chairman

ANALYSIS OF THE MAJOR FUNCTION OF EUGENE O'NEILL'S EXPRESSIONISTIC EXPERIMENTATION IN SELECTED PLAYS

John R. Schell

Eugene O'Neill often experimented with dramatic styles and devices in his plays. Among the more significant of his experiments are those plays written in the style of expressionism. In fact, it was O'Neill's expressionistic plays which established him as an international literary figure. However, in spite of the importance of his expressionistic plays, little attempt has been made to examine the function of his expressionistic technique. The purpose of this thesis, therefore, is to study O'Neill's expressionistic experiments as they carry out the major function of presenting the distorted view of reality held by the major characters. This distorted view is the result of the character's psychological disintegration which has resulted from his inability to resolve his inner conflicts. The plays in which this function is most evident are The Emperor Jones and The Hairy Ape, O'Neill's two most successful expressionistic plays, and The Great God Brown, which uses masks as a major expressionistic experiment.

In The Emperor Jones, a play about the Negro ruler of an island in the West Indies, O'Neill uses expressionistic techniques and devices to trace Jones' reversion to savagery. The play is fragmented into eight short scenes, with each scene corresponding to a stage in Jones' psychological disintegration. Auditory devices such as the drum beat and the pistol shot, and visual devices such as Jones' visions, the clothing, lighting, and setting serve to dramatize Jones' inner conflicts and gradual deterioration.

The Hairy Ape dramatizes the alienation and resulting psychological disintegration of Yank, a stoker on the liners. The expressionistic technique in this play emphasizes Yank's distortion of reality; the setting, the appearance and behavior of the characters are all used expressionistically to show the contrast between reality and Yank's perception of it. This play also is divided into short scenes to emphasize Yank's inner conflicts and resulting deterioration of his mind.

The Great God Brown uses only one major expressionistic device, the masks. However, the masks are extremely important to the play, as they serve to visualize the destructive inner conflicts from which Dion and Billy suffer. The masks convey both the nature of the conflicts and the changes which occur as a result of the psychological disintegration caused by the conflicts.

Criticism of O'Neill's expressionistic plays is mixed. Jones is generally felt to be a successful play because the expressionistic techniques and devices achieve a remarkable unity of effect, all functioning to characterize the distorted mind of Jones. Ape also is fairly successful. The expressionistic devices are able to convey Yank's inner distortion of reality; however, there has been some criticism of the less expressionistic scenes, as these do not always make clear Yank's inner conflicts. Brown is the most imperfect of these plays; many critics feel the masks are confusing. If they could carry out O'Neill's intentions, they would be successful in dramatizing the inner division of the characters. However, the masks are not easily seen by an audience, and it is extremely difficult to convey the complexity of meaning which O'Neill intended them to have. This play is probably more successful for the reader than the viewer.

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John L. Melton, Chairman

CREATIVE MYTHOLOGY: VARDUS FISHER'S THE TESTAMENT OF MAN

Roberta J. Strandlund

Since many older myths lie in a state of decay, creative myths are needed to sustain the modern psyche. But what is this vast image called "creative mythology"?

Thrall and Hibbard state that mythopoeists, speaking as prophetseers, employ collective truths, older and newly created myths, and "primitive methods." Vardis Fisher's mythic techniques comply with all these requirements, since he (1) appeals to the modern reliance upon science, our collective truth, (2) recreates new myths from shattered fragments of the old, (3) patterns his creative myths after "primitive methods," reenacting the role of a prophet-seer. Extending this definition, Joseph Campbell contends that a mythopoeist must use his own life experiences to create his myth, and that he must shatter and reintegrate the fixed or older myths, concluding with a new "truth" of life "as it is." Fisher complies with these requirements through his role as a creative iconoclast, but presents his new myth as a temporal hope rather than a divine salvation.

Concluding that the older mythic truths have become lost, Fisher, in *Testament*, proceeds to conjure up mythic ghosts, shatter them, and from their ashes, recreate or reaffirm lost truths. To indicate their state of decay, Fisher does not pattern his older mythic references, but presents them as unpatterned symbols, which he then remolds into new or lost truths.

Three diverse categories of mythic references exist within Fisher's mythic technique: the first, exemplified by the *Odyssey* and Vidar references, represents older myths in which Fisher sustains the traditional views of both character and theme; and second, exemplified by the Satan reference, evidences a symbol or character which Fisher endows with totally new connotations; and the third, Fisher's sexual symbols, includes two sub-divisions, one sexual allegory, the other complex sexual symbols. Through his complex sexual symbols, Fisher is implying the ancient idea of dualities, found in many Eastern mythologies, which contend that truth is never "either-or" but rather, "both-and," a paradox out of which new and better truths often arise.

The theory of existent dualities and their urge to reunite forms the foundation of Fisher's creative myth. However, before proceeding into an investigation of Fisher's mythopoeism, several terms must be defined as follows: Orphans--the fearful and lonely people of the world; gethsemane--agonies of the soul, terror, confusion, and the "oilpress"; and adults--emotionally and mentally mature humans.

The structure of Fisher's creative myth is built upon the patterned duality-oneness theme, a cyclical theme which forms the basis of many mythologies; for Fisher arrives at his new myths through the presentation of dualities: in each duality, fear versus security, the individual versus the group, the male versus the female, a new balance or oneness is necessary if a healing is to be reached. Through this eventual oneness, a new harmony will develop between the individual, his community, and the universe. And hope exists for mankind. Hope is a rational world, an "adult" world. It is a world with potential, filled with the thoughts of great men, and built upon faith in human courage and growth. It is a world where ambivalent dualities merge and mate, giving birth to a multitude of new hopes and new truths.

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John L. Melton, Chairman

SUFFERING AND GUILT IN THE WRITINGS OF PHILIP ROTH

Gwynethe R. Herrmann Whitlock

ABSTRACT: The purpose of this investigation was to survey Philip Roth's four major works (*Goodbye, Columbus*, 1959; *Letting Go*, 1962; *When She Was Good*, 1967; and *Portnoy's Complaint*, 1969), particularly as they related to the theme of guilt and suffering. Roth's characters live in a "cockeyed" world where the social structure, their economic status, and individual psychological "hang-ups" cause them to feel guilt and to suffer. Within the social structure Roth depicts family, relatives, friends, religion, and race as problem areas. The relationships of husband and wife and parent and child are deteriorating; the idea of caring for one's relatives is becoming passé; friendships are becoming difficult to establish; religion as a basis for life is giving way to materialism. All of these weaknesses in the society cause guilt feelings and the subsequent suffering. Roth also indicates guilt is produced by the inability to support one's family satisfactorily, often because of insufficient education and the resultant lack of professional status. The suffering in this case may be both physical and emotional. Changing values in the American society produce other guilt feelings and suffering, particularly in the area of sex.

Further examination revealed that Roth's style contributes significantly to the

development of this theme of guilt and suffering. His characters are often in an ambivalent state, unable to make a definite choice or unsure of the correctness of the choice they do make. This ambivalence greatly enhances Roth's description of the characters' guilt and suffering. The feeling of ambivalence is oftentimes developed through Roth's use of figurative language such as symbolism, similes and metaphors. In many cases Roth's style is humorous, and this helps to point out the "cockeyedness" of the world he describes. Black humor, particularly in Portnoy's Complaint, helps to show why many of his characters have ambivalent feelings; so, too, does the irony in his writing. His skillfulness in recording Jewish diction and syntax as well as his accurate dialogue help to define his characters, advance his plots, and develop his theme.

Since Roth is a Jewish author, some critics feel he is writing about Jewish problems. However, this investigation seemed to indicate that the problems he describes are not simply Jewish, but are pervasive in America. He writes mainly about Jews because he is best acquainted with them, but his work goes far beyond the American-Jewish community. Roth's continued fame as an author will no doubt rest on the validity of his delineation of the American way of life.

APPROVED BY THESIS COMMITTEE, AUGUST 1971

Armand Falk, Chairman

GEOGRAPHY

OUTDOOR RECREATIONAL PREFERENCES OF SELECTED FAMILIES IN A CENTRAL MINNESOTA COMMUNITY

Thomas C. Schinke

The purpose of this research project was: (1) to determine in what kind of outdoor recreation families in the central Minnesota community of St. Cloud engaged and where they went to take part in their family recreation, (2) to determine if there were factors that affected a family's outdoor recreation activities, (3) to determine a family's perception of the most restricting factor to its outdoor recreation program, and (4) to determine a family's perception of the attractiveness and unattractiveness of a recreation activity and site.

The sample consisted of 100 families of Eighth Grade Students in St. Cloud's North Junior High. The questionnaire was the instrument used to collect data essential for determining the outdoor recreational preferences of those families. All the data was recorded by placing the information into four selected income categories, and the actual outdoor recreation in which families engaged was also recorded by selected occupation groups. Mapping much of the data gave a spatial dimension to this investigation.

Ninety-eight percent of the St. Cloud area families took part in at least one of the 4,392 total outdoor recreation outings made. A majority of families took part in fishing, swimming, picnicking, and auto riding; fishing was engaged in by 61.0 percent of the families surveyed. These families engaged in a great variety of activities, however 97 percent of the total number of outings were made within Minnesota. Stearns County received the highest concentration of all the outings made. Benton and Cass Counties provided the setting for the highest percentage of the recreation outings made by St. Cloud families within Minnesota but outside of Stearns County. St. Cloud families also took 73.1 percent of their extended vacations within Minnesota. The highest percentage of out-of-state outdoor recreation of St. Cloud families took place in Montana, while Wisconsin received the second highest percentage. Income was found to be related to occupation, and thus both influenced the recreation programs of the families surveyed. Time and money were the factors that most restricted a family's recreation program. Variety such as different and new activities, made a recreation activity attractive, while water related factors and cleanliness made a site attractive; the single factor that made both a recreation activity and site unattractive was pollution. In most respects, the outdoor recreation of St. Cloud families closely followed the national and state patterns demonstrated by previous studies. This study represents an attempt to better identify and interpret the spacial, attitudinal, and economic dimensions of outdoor recreation.

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Philip Tideman, Chairman

GEOGRAPHICAL ASPECTS OF THE GENUS ARAUCARIA

Gerald A. Wheeler

All industrially developed nations require an adequate supply of softwood for the smooth operation of their economies. Yet the conifers that serve as the backbone of the wood industry in the northern hemisphere are for the most part confined north of the equator. This suggests the question then, what trees fulfill similar commercial requirements south of the equator?

With few exceptions, the conifers of the southern hemisphere are represented by an entirely different set of genera from those comprising the taiga and other northern coniferous forests. This study shows that among the twenty some genera of Coniferales indigenous to the southern hemisphere, the genus Araucaria is by far the greatest in economic importance, especially in South America, Australia, New Guinea, and most other areas of Australasia.

Although fossil records indicate that Araucaria was once represented in both the northern and southern hemispheres, the araucarias had disappeared from north of the equator by the beginning of the Tertiary Period. In consequence, the genus Araucaria of today is confined to the southern hemisphere and is represented by the three taxonomic sections Colymbea, Intermedia, and Eutacta.

Often incorrectly called pines, araucarias are evergreen, resinous trees that grow in tropical, subtropical, and mesothermal climates and are highly valued for their timber and gum. Displaying a remarkably disjunct distributional range, the extant araucarias grow natively in South America, New Caledonia, the New Hebrides, Norfolk Island, New Guinea, and Australia.

In Australia, Araucaria forest is confined to the eastern coastal ranges of Queensland and New South Wales, its distribution largely controlled by edaphic and climatic factors. Here, in subtropical rain forest, araucarias grow as tall emergents of varying frequency above a canopy of predominantly broadleaved angiospermous species.

Owing to the extent of the stands and quality of the wood, Araucaria early became the most valuable softwood in Australia. For many decades, the logging of araucarian timber in Queensland and New South Wales supplied the bulk of the Australian softwood cut. But because of the continuous demand for araucarian wood, logging the original forests can no longer meet the softwood needs of the Australian continent. This study shows that, indeed, these needs, in the future, can only be satisfied by the conservation of native stands and the installation of plantation programs of Araucaria species, as well as other conifers—both indigenous and exotic.

APPROVED BY THESIS COMMITTEE, MAY 1973

Ruben L. Parson, Chairman

HISTORY

FRED MARSHALL'S CONGRESSIONAL CAMPAIGN OF 1948

Jean M. Choate

PROBLEM: Fred Marshall's congressional victory in 1948 over a well-known opponent was considered surprising. This thesis deals with the Marshall campaign in the Sixth Congressional District in Minnesota and attempts to determine which factors were influential in securing his victory.

PROCEDURE: For the national and state events, newspapers and general works on the period were used. On the campaign itself local newspapers, interviews of, and letters from Fred Marshall and others were used.

FINDINGS: The campaign was influenced by various factors on the national level: The Marshall Plan, Taft-Hartley Act, Knutson's tax-reduction bill, and the farmers' dissatisfaction with governmental agricultural programs. These all became issues in the campaign. On the state level a split in the D.F.L. party affected the congressional primary but did not influence the general election to any great extent.

Other factors influential in the campaign were Marshall's family, reputation, farm

background, and experience in government agricultural programs.

The primary contest for the D.F.L. nomination to candidacy for the U.S. Congressman was between Fred Marshall and Arthur Gustafson. Neither of the men had much money to spend on campaigning nor did they attack each other.

Representative Harold Knutson, the incumbent, was well known. He had been a member of Congress for thirty-two years and was Chairman of the powerful House Ways and Means Committee. Although he had many friends in the Sixth District, Knutson had antagonized some important groups by the way he had voted in Congress. Among these were: college educators, co-op leaders, labor unions, and veterans. He had also voted against the Marshall Plan and as that negative vote was brought out by Fred Marshall it became one of the important issues of the campaign. The tax reduction bill which Knutson had pushed through Congress also became an issue. Knutson did not campaign extensively in the Sixth District in 1948. He was sixty-eight years old in 1948 and his age may have been a factor. He spent part of the fall campaigning for the Republican Senator Joseph Ball. He may also have underestimated his competition.

In the campaign, Marshall acquired several staff members, two of whom were college students. His campaign manager, Paul Presseller, had worked with him in government agricultural programs before. Presseller and Marshall organized a very effective All-Party Volunteer Committee whose twenty-one members were mostly farmers who were well known in their communities. Others who were helpful in the campaign were women volunteers who helped with mailing literature, students and veterans who campaigned, and co-op and union leaders who worked with the members of their groups. Marshall did not have enough money to use in the campaign. A great deal of the campaign funds was spent on advertising, postage, pamphlets, posters, printing costs, and campaign advertising in newspapers. Fred Marshall spoke out clearly on issues of importance such as the Marshall Plan, Knutson's tax reduction bill and federal agricultural programs. He also attempted to appeal to people of all parties, and tried to wage a "clean" campaign.

Marshall won in 1948 because of a combination of favorable circumstances, airing of important issues clearly distinguished, effective organization, bipartisan support, and appealing personality.

APPROVED BY THESIS COMMITTEE, JULY 1972

Calvin W. Gower, Chairman

EDITORIAL OPINION IN MINNESOTA'S GERMAN LANGUAGE WEEKLIES, 1890-1920

Carol A. Mayer

PROBLEM & PROCEDURE: This study focusses upon the editorial opinions expressed in Minnesota's German language papers on certain national and international issues that arose between 1890 and 1920 in order to determine: (1) if the papers considered these issues important or if they showed the same tendency to stress ethnocultural issues noted by other authors in their studies, and (2) if they responded to non-ethnocultural issues with the same degree of unity with which they had responded to the predominantly ethnocultural issues confronting them before 1890.

FINDINGS: The papers' reactions to the manifestations of discontent by the nation's farming and laboring classes during the early and mid-1890's showed almost all of them to be sympathetic toward the farmer and the worker. Although they refused to support what they considered to be immoderate methods or irrational demands, they were not conservative enough to accept and endorse the status quo when the status quo meant the Republican Party, big business, and the protective tariff.

The latter two issues, that is, the evils of the trusts and the need for tariff reform received the most consistent emphasis from the papers. Constantly they stressed the undue benefits the high tariff had brought the nation's protected industries, and they demanded significant tariff reform as the sole means of effectively curbing the excesses of the trusts. Since most of them rejected Roosevelt's trustbusting activities and Taft's efforts at tariff reform as half-way measures, the Democratic Party was able to maintain a dominant position among the state's German papers up to the outbreak of the World War.

In the area of foreign policy, the papers showed a strong consensus of opinion on the issue of imperialism, especially as that issue was embodied in the question of the retention of the Philippines. On issues less salient than that of imperialism, editorial comment was more limited and more varied. Thus, although they agreed that the additional burdens the United States incurred through its evolving position as a world power and as the dominant power in the Western Hemisphere were regrettable, they often either failed to comment upon specific incidents involving these issues or failed to agree in their assessments of the ways in which the Republican incumbents responded to these incidents. The non-partisan attitude which they displayed toward foreign policy issues arising after the decline of the imperialist issue emphasizes their primary orientation toward domestic issues.

With the outbreak of the World War the papers again achieved a consensus of opinion equivalent to that which they had displayed toward the issue of imperialism. Their strong and consistent support for Germany as well as the arguments they advanced against administration policy prior to April, 1917, lead one to conclude that they never genuinely accepted the justifiability of Wilson's decision to go to war. In 1920 the papers rejected Wilson's League, but Cox' close association with Wilson and his policies and his past hostility toward German-America were probably the most decisive factors in their unanimous repudiation of the Democratic Presidential ticket for the first time in three decades.

SUMMARY & CONCLUSIONS: Minnesota's German papers displayed a strong consensus of opinion on the major non-ethnocultural issues confronting them between 1890 and 1920. Although ethnocultural issues were not ignored, up to the outbreak of the World War no issues received more consistent emphasis than did the economic issues of tariff reform and trust control. The strong preference which the German papers showed for the Democratic Party and its doctrine of tariff reform challenges the assertion that German-Americans preferred the Republican Party.

Viewed simply as organs of communication, the German language papers fulfilled completely their obligation, from an editorial standpoint, to present to their readers their views of important issues. Although they always displayed a strong pride in their German heritage, they did not display a strong sensitivity to issues involving Germany until they felt forced to do so with the outbreak of the World War.

APPROVED BY THESIS COMMITTEE, FEBRUARY 1974

Edward L. Gambill, Chairman

THE OPERATION OF THE SAUK RAPIDS-ST. CLOUD LAND OFFICE 1849-1883

Thomas W. Mulligan

The disposal of the public lands of the United States as part of the westward movement of the United States is the primary concern of this paper. At issue in this study is the question of how the local land offices at Sauk Rapids and St. Cloud carried out the myriad and complex tasks of surveying, selling, and protecting the public lands. Historians have debated the role of the public lands in western settlement and have seriously questioned the effectiveness of the General Land Office. A study of the Sauk Rapids-St. Cloud Land Office provides an opportunity to evaluate these historiographical arguments in light of very specific evidence.

The St. Cloud Land Office serves as an excellent model for a case study of General Land Office operations since the district contained nearly all of the variables which made disposal of the public lands the difficult task it proved to be: excellent agricultural land, prime pine timber lands, changing land district boundaries, and extensive railroad land. In addition to these physical features, the St. Cloud Land Office was administered by a series of local administrators who varied greatly in quality.

For the most part the St. Cloud Land Office was administered as competently as possible given the nature of the conditions under which the administrators worked. Control of the St. Cloud Land Office was contested by local factions who sought control by criticizing each other in the newspapers each faction controlled. Charles A. Gilman, Thomas C. McClure, and Henry C. Waite were the members of one faction. Each of these individuals served as Register and Receiver. A fourth member of the faction, Nehemiah Clark, held no official position in the local land office, but used his connections and his partnership with Thomas C. McClure to acquire sizeable holdings of prime pine timber land. Charles A. Gilman used his

position in the Land Office to secure substantial quantities of land for his real estate business. William B. Mitchell and H.C. Burbank were members of the competing faction who criticized local land office operations and in turn were rewarded with positions as Register and Receiver.

Substantial land fraud occurred at the St. Cloud Land Office. The principal method by which prime pine timber land was illegally obtained was the use of Chippewa Half-Breed Scrip. This scrip, issued despite the opposition of the General Land Office, was originally intended to provide eighty acres of land to members and descendants of the Lake Superior band of Chippewa Indians. Using blank powers of attorney and cooperative members of the Pembina band of Chippewas, Joseph P. Wilson, a St. Cloud land dealer, obtained sizeable tracts of pine timber land. Joseph Wilson then transferred these pine lands to prominent Minneapolis lumbermen including T.B. Walker, C.A. Pillsbury, William T. Aukney, and others. Wilson's actions had the cooperation of Charles A. Gilman of the St. Cloud Land Office. Following a Congressional investigation, the lumbermen were allowed to purchase the illegally obtained, extremely valuable pine lands for the minimum established government price.

American historians have long debated the nature and value of the American land system. The subject of their study is a system which emerged not as part of a grand design but as a result of the various sectional pressures placed upon Congress. The questions of the treatment and disposal of the public lands were totally enmeshed in all of the public issues of the nineteenth century. As a consequence any analysis of the American land system must take into account the peculiar nature of its growth, the size of its task, and the accomplishment of its goals.

APPROVED BY THESIS COMMITTEE, APRIL 1973
Kenneth Acree, Chairman

A STUDY OF THE CIVIL WORKS ADMINISTRATION-CIVIL WORKS SERVICE WITH EMPHASIS UPON SELECTED AREAS OF MINNESOTA

Myron S. Umerski

PROBLEM: In 1933 in the face of massive unemployment, the government of the United States instituted various programs including the Civil Works Administration (CWA) and the Civil Works Service (CWS). Of major concern was the necessity for the CWA and the CWS. A determination of CWA-CWS goals and the programs' effectiveness in reaching these goals was necessary. Also it was necessary to evaluate the many facets of CWA-CWS design. St. Cloud (Minnesota), Stearns County (Minnesota), and the state of Minnesota were selected as areas of concentration.

PROCEDURE: Research concerned with St. Cloud and Stearns County required newspapers of the communities and state relief agency reports as primary source materials. State involvement in the CWA-CWS was recorded primarily in Minnesota Federal Emergency Relief Administration reports, Minnesota State Board of Control reports, Minnesota Civil Works Administration reports, Minnesota Planning Commission reports, and a multitude of minor agency reports such as State Engineer and Highway Department records, most of which are housed in the Minnesota Historical Society, Minnesota Archives, Minneapolis Public Library, and University of Minnesota Library. Federal involvement was primarily documented in Federal Emergency Relief Administration Monthly reports, CWA official publications, and secondary sources.

CONCLUSIONS: During the winter of 1933-34 public and private agencies, local and state governments, and the federal government were not providing adequate unemployment relief, therefore the CWA-CWS was created to meet the needs of the unemployed. CWA-CWS funds were spent primarily on wages which the unemployed used to purchase life's necessities. It was left to other programs to stimulate industrial production.

The CWA Administrator, Harold Hopkins, reached his goal of employing four million people, however it became obvious that many more needed his assistance. This employment changed the attitude of the unemployed from despair to optimism. At the beginning, CWA-CWS projects were of questionable merit but they soon met all requirements and most projects were very successful. CWA-CWS projects were sometimes delayed by the lack of long range planning efforts.

The CWS was a completely innovative program which provided professionals, white collar workers and unskilled women with tasks that suited their abilities. Future work relief

programs would adopt this policy.

The haste with which CWA-CWS was established created several problems. Need for an immediate source of funds bound the CWA to PWA regulations, causing the CWS to operate temporarily as a separate unit. PWA funding also forced excessive wage scales upon the CWA, resulting in severe criticism of the program. Haste brought on confusion among many cooperating agencies. Hopkins tolerated such problems because his objective was to assist people immediately.

Implementation of the CWA-CWS was primarily the responsibility of local officials. St. Cloud and Stearns County were fortunate that they had productive leadership. Some other areas of Minnesota and the country found varying degrees of corruption, political interference, and inefficiency, usually the fault of local officials.

The CWA demonstrated the dole was an unsatisfactory method of providing relief for the unemployed. The dole allowed morale and skills to deteriorate.

The CWA was the first completely federal program and extended federal influence deeper into work relief than any previous program. Control over state activities was used sparingly but it forced states to assume a greater share of work relief assistance. This power substantially discouraged the use of the work-test.

The CWA, while holding onto some traditional activities, also developed new experiences and philosophies for work relief programs. The experiences gained through working with organized and unorganized elements of society developed the attitudes and philosophies of future large scale work relief programs.

APPROVED BY THESIS COMMITTEE, JUNE 1972

Calvin W. Gower, Chairman

SPEECH SCIENCE, PATHOLOGY AND AUDIOLOGY

TRAINING ORAL PERCEPTION AND SENSATION

Sharon Kay Byrne

PROBLEM: The intent of this study was to determine whether or not oral perception and sensation could be increased through training with appropriate oral-tactile discrimination tasks. It was hypothesized that the scores on a test of Oral Discrimination would not increase after a period of oral perception and sensation training.

PROCEDURE: Fourteen children having articulation deficiencies and a low score on the test of Oral Discrimination participated in the study. All subjects were selected from the third through the sixth grade. The subjects were divided into an experimental group and a control group, consisting of seven subjects each.

All of the subjects, both in the experimental group and in the control group, were given the test of Oral Discrimination. The experimental group was then given training in oral perception and sensation. The control group received no training. Both groups were again tested after the training was completed.

The scores for the pre-test and the post-test were statistically compared for both the experimental and control groups.

RESULTS: There was a statistically significant increase in the test scores for the experimental group. The scores for the control group did not significantly increase.

There was not a statistically significant difference between the pre-test scores for the experimental group and the control group. There was, however, a significant difference between the post-test scores for the experimental and control groups.

CONCLUSIONS: Oral Discrimination skills can be increased through appropriate training in oral perception and sensation. Further study is needed to establish a relationship between increased oral discrimination skills and articulation abilities. Oral perception and sensation training may be a useful tool in the clinical setting for speech pathologists.

APPROVED BY THESIS COMMITTEE, JUNE 1973

Martin A. Kummermeier, Chairman

MISARTICULATIONS IN A BILINGUAL POPULATION

James Michael Cullen

PROBLEM: Many phonemes which are a part of the Spanish phonemic system either do not occur in the English phonemic system or are used according to different phonemic rules. As a result of this discrepancy, many children in the Southwestern United States, who are bilingual, have difficulty in mastering the appropriate phoneme usage in English. It follows that there is a need to identify the specific articulation errors made by the bilingual children of New Mexico, when they are speaking English.

PROCEDURE: Selected subtests of the Templin-Darley Tests of Articulation, which examined the subjects' articulatory proficiency on consonants, in the initial and final positions, vowels, diphthongs and combinations were administered to the subjects. The subjects were from the fourth, fifth and sixth grades, in school with a high Spanish speaking population. The data were grouped according to the number and type of misarticulation.

FINDINGS: Errors most commonly found involved the voiceless, "th," "ch," "ng," "t" and "i" as in "bid." Seven speech sound errors were found. In order of decreasing frequency they were "ng," "zh," "t," "ch," (in the initial position), "i" as in "bid," the voiceless, "th" and "ch" (in the final position).

CONCLUSIONS: It was concluded that bilingual Mexican-American children experience specific articulation problems, involving primarily final consonants and confusion of the continuity feature.

APPROVED BY THESIS COMMITTEE, AUGUST 1973

Martin A. Kammermeier, Chairman

THE EFFECT OF TRAINING ON THE CORRECTNESS OF STUDENTS' JUDGEMENTS OF ARTICULATORY RESPONSES

Steven L. Danks

PROBLEM: The purpose of this study was to determine if beginning undergraduate majors in speech pathology could increase their percentage of correct judgments of incorrectly and correctly articulated speech sounds after having been trained in the identification of incorrectly and correctly articulated speech sounds.

PROCEDURE: The Ohio State University Audio-Visual Test (Forms A and B) for the Recognition of Misarticulations was used as the stimulus material. Eighteen undergraduate speech pathology majors were divided into two groups of nine on the basis of their score on Form A. The training for the experimental group consisted of two viewings of Form A with immediate feedback on the correctness of their response. Both groups were post-tested using Form B and the scores then analyzed.

FINDINGS: The effect of training when tested with the Wilcoxon matched-pairs signed-ranks test was not significant at the .025 level of significance. The training of the experimental group in the identification of correctly and incorrectly articulated speech sounds did not increase their percentage of correct judgments. The mean percentages of correct judgments for the experimental and control groups were 82 percent and 83 percent, respectively. An analysis of the errors made show there was a difference in the type of errors made. The experimental group made 26 percent of the errors in the form of a "miss" and 74 percent of the errors in the form of a "false alarm." The control group made 49 percent of the errors as "misses" and 51 percent of the errors as "false alarms." The type of errors made before and after training and possible reasons for the change in criterion of the experimental group were discussed.

CONCLUSIONS: The training given to the experimental group did not improve their accuracy in judging articulatory responses. It was found, however, that the experimental group changed

the criterion they were using in making judgments of correctness and incorrectness of articulatory productions. This shift in criterion decreased the "miss" rate but increased the "false alarm" rate.

Suggestions for further research were made. Included were increasing the length of training as a means of increasing the distinctiveness of the distribution of correctly articulated sounds relative to the distribution of incorrectly articulated sounds, changing from a yes or a no response to a phonetic transcription, and separate training for each of the three types of stimuli presented in the test.

APPROVED BY THESIS COMMITTEE, AUGUST 1973

Martin A. Kammermeier, Chairman

CLINICIAN PERSONALITY AND RATED EFFECTIVENESS

Julie Anna Diekmann

PROBLEM: Empirical evidence has supported a relationship between the psychotherapist's personality and his effectiveness. In speech therapy, a helping profession which resembles, includes, or is a form of psychotherapy, the idea that the personality traits of the clinician directly influence his effectiveness has been widely discussed, but rarely examined experimentally. The purpose of this study was to determine if there was a significant difference in the personality traits of two groups of student speech clinicians, one group consisting of those clinicians rated as most effective, and the other of those rated as least effective. The hypothesis was that there would be no significant difference between the personality traits of the most and least effective clinicians.

PROCEDURE: Twenty student speech clinicians who had completed a minimum of five credits of clinical practicum served as subjects. The subjects were ranked for effectiveness by three faculty members. The subjects were divided into two groups. The ten most effective clinicians were selected to compose Group A; the ten least effective composed Group B. The Sixteen Personality Factor Questionnaire was administered to all subjects. The scores of Groups A and B on the personality questionnaire were compared using statistical and nonstatistical methods.

FINDINGS: The data consisted of the raw and standard scores earned by the subjects on the personality questionnaire. There was no significant difference between the average raw scores of Group A and B. Neither was there a significant difference between the standard score means of Group A and B. A similarity existed between the graphed raw score profiles of the two groups, and between the graphed standard score profiles of the two groups. Both Groups A and B possessed some of the traits described in the literature as desirable for the successful speech clinician. Compared to the average person, both Groups A and B were more emotionally stable and more tender-minded.

There was some differences in the personality traits of Groups A and B. Compared to Group B, Group A subjects were more outgoing, happy-go-lucky, suspicious, experimenting, and tense. Compared to the average person, Group A subjects were more outgoing, imaginative, and experimenting. Group B subjects, in comparison to Group A subjects, were more venturesome, shrewd, and controlled. Group B subjects were also more venturesome, shrewd, self-assured, and relaxed than the average person.

CONCLUSION: There were some differences in the personality traits of Groups A and B. The differences, however, were not statistically significant. These results indicate; within the limits of this study, that the relationship between the clinician's personality and his effectiveness is not significant.

APPROVED BY THESIS COMMITTEE, AUGUST 1972

Martin A. Kammermeier, Chairman

RELATION OF DISTINCTIVE FEATURES TO SPEECH INTELLIGIBILITY FOR THE HEARING-IMPAIRED

Juliana E. England

PROBLEM: Distinctive features of speech sounds have been studied extensively in recent years. No direct attempt has been made, however, to apply distinctive feature analysis specifically to speech discrimination and expressive language ability of hearing-impaired persons. The purpose of this study was to do a distinctive feature analysis on the speech sound errors made by hearing-impaired subjects.

PROCEDURE: Seven children, aged 10-15 years, with borderline-moderate to borderline-severe hearing impairments were chosen for the study. Each child was presented, via monitored live voice over sound-field speakers, a test consisting of 12 polysyllabic and 13 monosyllabic words. Oral and graphic responses were obtained from the subjects. Consonant sounds comprising these words were subjected to a distinctive feature analysis.

FINDINGS: The majority of errors (65 percent) were substitutions of one sound for another. The next highest percentage of errors (24 percent) were omissions. The remainder (11 percent) consisted of additions and "miscellaneous" errors (for example, wrong word responses such as "cake" for "pink"). Most errors in manner of formation corresponded to errors in place of articulation. Relatively few ($N=8$) voicing errors occurred; the subjects tended to substitute a voiced for another voiced consonant and vice versa. Most omission errors involved final consonants; however, there did not appear to be any clear pattern of omitted features in the subjects' responses.

CONCLUSIONS: While more research is needed before clear implications or conclusions can be drawn, it appears that distinctive feature analysis may, indeed, be useful in habilitation and rehabilitation of hearing-impaired individuals. There is evidence here to indicate that distinctive features do contribute to errors in speech discrimination; conversely, evidence exists which indicates that these features contribute to correct production as well.

APPROVED BY THESIS COMMITTEE, AUGUST 1973

Martin A. Kammermeier, Chairman

ORAL STEREOGNOSIS AND SOUND LEARNING IN NORMAL SPEAKERS

Douglas E. Fox

PROBLEM: The intent of this study was to determine if sound learning ability is related to oral stereognosis. This aspect of oral-sensitivity testing was selected for the investigation because of the inconclusive evidence in the literature. It was hypothesized that there would be no significant differences between a group of normal speaking children with high and another with low oral stereognosis scores on a task of sound learning ability.

PROCEDURE: Seventy-three normal speaking children participated in an oral stereognosis task. Fifteen subjects with high scores and fifteen with low scores in oral stereognosis were selected for further investigation. These thirty subjects participated in a sound learning task. The mean age of the subjects was 8.74 years. All subjects were selected from the campus laboratory school at St. Cloud State College.

The stimuli used in the test of oral stereognosis consisted of 20 plastic geometric forms developed at the National Institute of Dental Research. Twenty forms for the oral stimulus and twenty forms for a visual display were used.

Each geometric form was presented orally and the subject identified the form in his mouth by pointing to its match in a visual display. The 20 stimulus forms were presented to the subjects in a random order. The subject's score was the number of correct identifications he made.

The stimuli used for the sound learning task, consisted of three pre-recorded German sounds, /ach/, /ich/, and /oe/. The tape contained seventy-eight random presentations of the three sounds. Each sound occurred 26 times and each sound was five seconds apart. Each

subject listened alone in a quiet room. The subjects were instructed to make their imitative sound match the German stimulus sound. The subject's imitations were recorded on a separate track immediately after the stimulus sound.

Three judges with high inter-judge reliability listened to each of thirty tapes. They rated the acoustic similarity between the stimulus sound and the imitative performance of the subject. The ratings of the three judges for each sound were averaged to get a mean rating on each imitation.

FINDINGS: The mean ratings assigned by the judges for each group were treated statistically. The difference for all three sounds was statistically significant beyond the .01 level.

Learning curves representing rate and level of acquisition of the three sounds were constructed. Differences for all three sounds were with level rather than rate of learning. The high group consistently received higher-mean ratings than the low group.

CONCLUSIONS: Oral stereognosis appears to be a psychophysiological substrate of articulation. There is a need for further research using an oral stereognosis task to study sensory deficits. The use of non-English sounds is a useful learning paradigm for testing important variables in articulation learning.

APPROVED BY THESIS COMMITTEE, JUNE 1972

Martin A. Kammermeier, Chairman

VOCAL RHYTHMIC IMITATIVE ABILITIES OF CHILDREN WITH NORMAL AND DEFECTIVE ARTICULATION

Marge A. Gersich

PROBLEM: Recent research has investigated the relationship between speech proficiency and certain measures of musical skill. The intent of this study was to determine the ability of children with normal and defective articulation to imitate vocally presented rhythm patterns. It was of interest to determine what relationship existed between the ability to imitate vocal rhythm patterns and articulatory proficiency.

PROCEDURE: Twenty-six males (mean age 8.34 years) were selected as subjects for this study, and placed into one of three groups according to their level of articulatory proficiency. Each subject was presented with twenty samples of rhythmically presented nonsense syllables and instructed to imitate these samples.

Two judges scored the imitative accuracy of the responses. The responses were tabulated and the data treated statistically. Reliability of the ratings was obtained by having two judges independently score the responses.

FINDINGS: A .02 level of significance was established in favor of the control group (I) when compared with the severe group (II). The performance of Group III (mild) was also significantly better than Group II. Although Group I performed better than Group III, the difference was not statistically significant.

CONCLUSIONS: It was concluded that a relationship existed between the ability to imitate vocal rhythm patterns and articulatory proficiency.

APPROVED BY THESIS COMMITTEE, AUGUST 1973

Martin A. Kammermeier, Chairman

USE OF THE MINIMAL DISTANCE PRINCIPLE BY ADULTS

Mary K. Gondek

PROBLEM: Research has shown that many adults do not have mastery of the Minimal Distance Principle (MDP). This is the general rule in English that the implicit subject of the

complement verb is the noun phrase most closely preceding it. The purpose of this study was to determine whether there was a significant difference between the number of errors for constructions requiring use or violation of the MDP and employing the first or third person singular. A significant difference would call into question the interpretation of previous research and the view that many adults do not know this structure.

PROCEDURE: Twenty adults were asked to respond to sentences which necessitated application or violation of the Minimal Distance Principle. Half of the items employed the first person singular and half employed the third person singular. The number of correct items using the first person singular were compared to those using the third person singular.

FINDINGS: No significant difference was found between use of the first person singular and third person singular. It was found that 75 percent of the subjects made errors on at least one of these constructions but that eight out of 15 made fewer errors on the last half of the items than on the first half. A Dependent t-test showed a significant improvement on the second set of items.

CONCLUSIONS: It was concluded that most adults do have knowledge of the Minimal Distance Principle although they may need several trials before they realize that the construction in this study is an exception to the general rule. This conclusion conflicts with that of Sanders' study (1971) in which she states that most adults do not have knowledge of this construction and therefore it should not be considered part of adult grammar.

APPROVED BY THESIS COMMITTEE, AUGUST 1973
Martin A. Kammermeier, Chairman

A LINGUISTIC DESCRIPTION OF VERBAL INTERACTION BETWEEN MOTHER AND CHILD

Patricia Ann Hopkins

PROBLEM: The study sought to describe the verbal interaction of mothers and young children. Of particular concern was the type and form of linguistic units used. Comparison with previous research was made.

PROCEDURE: Four children (C.A., 2.6, 3.0, 2.6, 3.9) and three mothers (C.A., 22, 23, 29) served as subjects for this study. A language sample of their verbal interaction was obtained by video recording. Written transcriptions of the recordings were analyzed for the linguistic forms of interest to this study. The data were the type and frequency of occurrence of the various linguistic forms.

FINDINGS: The most frequent words used by the children are nouns and verbs. In the mother's lexical distribution nouns, pronouns, verbs and prepositions are the most frequent classes. The most frequently occurring morphemes in the mothers' speech are the contractible auxiliary, third person regular and the plural. In the children's morphological distribution four morphemes recurred frequently. For two children (C.A., 2.6 and 2.6) the contractible auxiliary occurred most frequently whereas for the other two children (C.A., 3.0 and 3.9) the plural and third person regular were the most predominant morphemes.

The mothers frequently used interrogative and declarative type sentences. The most frequent types of sentences used by the children were declarative and single word utterances.

The mean length of utterance for Mother-I with Child-I was 5.90 morphemes; Mother-II with Child-II, 5.58 morphemes; Mother-III with Child-III, 3.44 morphemes; and Mother-IV with Child-IV, 6.33 morphemes. The mean length of utterance for the children was Child-I, 2.88 morphemes; Child-II, 4.16 morphemes; Child-III, 2.96 morphemes; and Child-IV, 3.44 morphemes.

The surface structure of the mothers' sentences included "wh" questions and the contracted copula. The children's surface structure differed considerable. Basically, two subjects (MLU, 2.88 and 2.96) demonstrated similar syntactic structure, that is expansion of the noun phrase with a limited verb phrase construction. The other two children used more adverbs and expanded both the verb phrase and noun phrase.

CONCLUSIONS: The results of this study indicate that (1) mothers used a specific pattern of speech as they verbally interacted with the language-learning child and (2) a distributional analysis is an effective tool for displaying differences in children's language performance.

APPROVED BY THESIS COMMITTEE, AUGUST 1973

Martin A. Kammermeier, Chairman

COMPARISON OF TWO METHODS OF OBTAINING A SPEECH SAMPLE FOR DISTINCTIVE FEATURE ANALYSIS

Catherine C. Knight

PROBLEM: Distinctive feature analysis has been a subject of considerable interest in recent years, as a theoretical model and as a practical tool for testing and therapy.

Research findings derived from distinctive feature analysis have been taken from a structured articulation test sample rather than from a conversational speech sample. Findings and implications, however, have been applied to conversational speech. The purpose of this study is to determine if findings derived from a structured articulation test sample can apply to conversational speech.

PROCEDURE: A five year, four month old boy who exhibited multiple articulation errors, but displayed no other obvious pathology, was utilized in the study. The child was first given a standardized articulation test, and then was engaged in active conversation. The two speech samples, articulation test and conversational speech, were completely taped during one session. The conversational sample was first subjected to distinctive feature analysis; after a month's time, the structured test sample was similarly analyzed. The results of the two sets of data were compared. Similarities and differences regarding feature confusion or lack of feature confusion were noted.

FINDINGS: Analysis of conversational and structured samples revealed similarities in features. However, the actual words in which these confusions were manifested occasionally differed.

CONCLUSIONS: It was concluded that distinctive feature information derived from structured samples can be generally applied to conversational speech. It appears that different methods may be utilized to obtain a valid speech sample for distinctive feature analysis.

APPROVED BY THESIS COMMITTEE, AUGUST 1973

Martin A. Kammermeier, Chairman

A STUDY OF THE EFFECTS OF ASSEMBLIES OF SOPHISTICATED AND UNSOPHISTICATED ADULTS WITH HIGH AND LOW LEVEL RETARDATES

Kathleen R. Lamminen

PROBLEM: The purpose of this experiment was to investigate whether individuals trained in speech pathology (sophisticated) and naive individuals (unsophisticated) respond differently to high and low level retardates when engaged in a story telling task.

PROCEDURE: Eight adults, four sophisticated and four unsophisticated, met for ten minutes each with four high and four low level retardates as determined by the Parsons Language Sample. The adults were instructed to tell the retardates stories based on stimulus picture sequences provided by the experimenter. All sessions were tape recorded to enable the counting of the verbal behaviors of the adults according to five language measures: type token ratio, mean length of responses, total number of words, total number of vocal responses, and total number of questions.

FINDINGS: A complex analysis of variance procedure showed no significant differences between levels of sophistication or between adult responses to the high and low level retardates. Mean differences were presented which appeared to indicate that on the average, adults emitted greater vocal output with more redundant and shorter lengths of response with low level retardates than to high level retardates. However these differences may have been due to random differences and do not necessarily reflect any trends. These mean differences were discussed in lieu of previous investigative findings where similar patterns of adult verbal behavior were observed.

CONCLUSIONS: Results of investigations where retardates' verbalizations were analyzed were presented. These results showed favorable increases in verbalizations by retardates stimulated with homogeneous levels of vocalization. These findings were discussed as important for all concerned in the habilitation of retardates.

Suggestions were made for further research which included replication, manipulation of type token ratio, and employment of various types of disorders in interpersonal assemblies.

APPROVED BY THESIS COMMITTEE, DECEMBER 1972

Martin A. Kammermeier, Chairman

THE EFFECTS OF RESPONSE-CONTINGENT PRESENTATION OF "WRONG" ON THE FREQUENCY OF DEFECTIVELY ARTICULATED PHONEMES IN AN ORAL READING TASK

David Jerome Lucca

PROBLEM: This study sought to explore whether response-contingent presentation of an appropriate verbal stimulus of misarticulations in an oral reading task. It was hypothesized that the verbal contingency "wrong" would decrease the frequency of misarticulations during the conditioning phases of the experiment and the removal of the contingency during the baseline phases would result in an increase in frequency of misarticulations.

PROCEDURE: Three third grade students were selected as subjects. An evaluation of their speech disclosed that one subject misarticulated the /r/-colored phonemes and two had frontal lisps. All three subjects were stimuable on the error phonemes but did not consistently articulate the phoneme correctly in speaking or reading contexts.

The experimental sessions were divided into baseline and experimental phases. During Baseline 1, the operant level of misarticulations was recorded as each subject read from a text. Following the Baseline 1 phase, Experimental 1 procedures were introduced. The experimenter presented the verbal contingency "wrong" immediately following each misarticulation. At the conclusion of Experimental 1, Baseline 2 conditions were put into effect. Conditions in Baseline 2 were identical to those in Baseline 1 in that no consequences followed incorrect responses. All remaining baseline and experimental phases were similarly conducted.

FINDINGS: All subjects showed a significant decrease in frequency of misarticulations for the Experimental 1 phase. Following removal of the contingency in Baseline 2, misarticulations for two subjects failed to increase significantly, but remained at low frequency throughout the remaining baseline and experimental phases. Removal of the contingency for the third subject resulted in an increase in response frequency. However, response frequency continued to increase throughout the remainder of the experiment regardless of whether baseline or experimental conditions were in effect. The verbal contingency "wrong" did function as a conditioned punishing stimulus for all subjects during Experimental 1 and continued to function as a punisher for two of the subjects throughout the remainder of the experiment.

CONCLUSION: Appropriate verbal responses function as punishing stimuli for some children. Whether a verbal response is punishing or not may depend on the child's past history of reinforcement and on the contingency schedule.

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Martin A. Kammermeier, Chairman

PERCEPTION OF MONOTIC VERBAL STIMULI IN STUTTERERS AND NON-STUTTERERS

Mary Lynne Campbell McAlonie

PROBLEM: It has been found that individuals with left cerebral dominance for language functions exhibit right-ear superiority on tasks involving verbal stimuli presented under dichotic listening conditions. The purpose of this study was to investigate the earedness of stutterers and non-stutterers, who were presumed to be left-language dominant, on a task of speech perception monotonically presented. It was of interest to determine if the right-ear effect could be produced under monotic listening conditions. It was hypothesized that there would be no significant difference between the performance of the right ear and that of the left (1) for the non-stutterers and (2) for the stutterers.

PROCEDURE: Ten stutterers (mean age 23.0 years) and ten non-stutterers (mean age 23.1 years) served as subjects for this study. All right-handed subjects were selected in an attempt to exclude right cerebral language dominant individuals.

The test consisted of 22 nonsense monosyllables of low associative value and 28 familiar monosyllabic words presented from a tape through earphones to each ear separately. The stimuli were presented at 10 db SL to all ears. The subject had to classify the stimulus as "word" or "non-word" and mark an answer form accordingly.

FINDINGS: The data, recorded in the form of test scores, were the number of errors for each ear for each subject. Fifty was the maximum number of possible errors for each ear tested.

Nine out of ten subjects from the group of non-stutterers demonstrated fewer errors for the right ear. Of the stutterers, six showed fewer errors for the left ear; three, fewer for the right ear; and one earned equal scores for both ears. The data were treated with the Wilcoxon Sign Rank Test. The difference in performance between ears for the non-stutterers is significant at the .01 level of confidence. The difference demonstrated between ears by the stutterers is not significant.

CONCLUSIONS: The results of this study indicate that (1) monotic presentation at low intensity reveals the right-ear effect in normal, right-handed non-stutterers; (2) the stutterers, as a group, demonstrate confused sidedness and lack of unilaterality; and (3) this evidence supports the theoretical viewpoint that stutterers in some way differ in neurophysiological organization.

It is suggested that future research (1) investigate the effect of varying intensities on monotic presentation to determine if there is a "critical" intensity at which the right-ear effect emerges; (2) undertake a study of this sort on a longitudinal basis to ascertain whether or not ear superiority in stutterers shifts in direction over time indicating a lack of clearly established cerebral dominance; and (3) substantiate these results by replicating this study using subjects in whom cerebral dominance has been ascertained by the Sodium Amytal injection technique.

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Martin A. Kammermeier, Chairman

THE USE OF SUPPORTIVE PERSONNEL IN PUBLIC SCHOOL SPEECH AND HEARING PROGRAMS

Loren A. Magsam

PROBLEM: There is a manpower shortage in the health and related fields which has become apparent because of increased government involvement, the expansion of knowledge in these areas, and the inability of rural areas to obtain adequate services. The field of speech pathology and audiology also feels this shortage, especially in the public schools.

PROCEDURE: The purpose of this study is to determine the feelings of Minnesota public school speech and hearing clinicians concerning the role, training, and supervision of supportive personnel. A questionnaire was handed out to sixty clinicians at the spring convention of the Minnesota Speech and Hearing Association in April 1972. Forty-four clinicians responded. The results are in tabular form.

FINDINGS: The majority of the respondents agree with the use of supportive personnel in the public schools. They feel the role of supportive personnel should be limited to tasks that are well defined and highly structured. The majority of the respondents also feel capable of training and supervising supportive personnel. However, the majority of the respondents did not feel they would be allowed the time necessary for the training of supportive personnel. The results also indicated that the majority of the respondents were probably unaware of ASHA's guidelines on supportive personnel.

CONCLUSIONS: The American Speech and Hearing Association suggests that the Certificate of Clinical Competence should be the minimum requirement for the training, supervision, and utilization of supportive personnel. Only a minority of Minnesota public school speech and hearing clinicians hold the CCC. Nevertheless, Minnesota clinicians felt capable of training and supervising supportive personnel. This, however, is contingent upon a well defined role for these supportive personnel.

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Martin A. Kammermeier, Chairman

EFFECTS OF MISARTICULATION OF /S/ AND /L/ ON INTELLIGIBILITY

Karen Oxman

PROBLEM: The purpose of the study was two-fold. The primary purpose was to determine whether the misarticulation of /s/ and /z/, and /l/ in an intelligibility test setting had an adverse effect on a listener's ability to recognize certain spoken words. The secondary purpose was to find out whether there was a statistically significant difference between the influence of the /s/ and /z/ phonemes and the /l/ phoneme on intelligibility.

PROCEDURE: A modified Multiple-Choice Intelligibility Test was the instrument used. The three treatment conditions of the study, "th/s," "w/l" and normal articulation, were prerecorded by the experimenter. Three adult female subjects participated in the study. Hearing ability was carefully screened. A monetary reward was contingent on correct responses to the test items. Criterion was the number of correctly identified words.

RESULTS: The treatment conditions containing words with the /s/ and /z/ misarticulation and the /l/ misarticulation had significantly fewer correct responses than did the normal articulation treatment condition. The difference between the two different misarticulations was not significant. The five percent level of confidence was utilized.

CONCLUSION: In an isolated word-situation, misarticulations adversely affect intelligibility. However, because of the number of cues provided for the listener in spontaneous speech at the conversational level, intelligibility is not likely to be significantly reduced due to a single type of articulation error.

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Martin A. Kammermeier, Chairman

AN INVESTIGATION OF PHONETIC MEDIATION IN NURSERY SCHOOL CHILDREN

Theodore L. Peterson

PROBLEM: The intent of this study was to determine if the ability to recall more rhymed than nonrhymed labels in a visual memory task is related to an implicit ability to detect rhyming. This aspect of phonetic mediation testing in young children was selected for the investigation because of inconclusive evidence in the literature. It was hypothesized that there

would be no significant differences between a group of nursery school children with high and another with low phonetic recall scores on a rhyme detection task.

PROCEDURE: Forty-one nursery school children participated in a short-term visual memory task. Ten subjects with high rhyme recall scores and ten with low recall scores were selected for further investigation. Those twenty subjects participated in a rhyme detection task. The mean age of the subjects was 4.96 years. All subjects were selected from the Gaetz Nursery School in St. Cloud.

The stimuli used in each task consisted of twelve sequences of three familiar pictures, presented in the form of colored slides. The six sets with rhyming labels and six sets with non-rhyming labels were presented in a random order.

In the short-term memory recall task the stimuli were projected onto a screen. After each sequence the subject was asked to orally recall the three pictures he had just seen. The numbers of rhymed and nonrhymed labels recalled by the subject were totalled.

Two weeks later, in the rhyme detection task, the subject viewed the pictorial stimuli through a slide viewer at his own rate. The original order of presentation was followed. The subject was asked to tell whether the pictures did or did not sound alike. The subject's score was the number of correct identifications.

FINDINGS: The results of the short-term memory task indicated an ability to recall more nonrhymed items, a statistically significant difference beyond the .05 level.

When compared to the low recall group, there emerged a tendency among the high recall group to more accurately detect which items sounded alike. Subsequent statistical analysis revealed this to be a nonsignificant difference.

CONCLUSIONS: In preschool children, there does not appear to be a relation between phonetically mediated recall and an implicit ability to detect rhyming. It would seem unlikely that 3- to 5-year olds use their phonological knowledge in memorizing picture lists.

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Martin A. Kammermeier, Chairman

CHANGES IN ORAL SENSITIVITY AS A FUNCTION OF SPEECH THERAPY

Karen W. Reitherman

PROBLEM: Speakers who misarticulate speech sounds have been shown to perform less well on tests of oral sensitivity than speakers who produce speech sounds correctly. It was not known if the relationship between articulatory proficiency and oral sensitivity holds true after articulation has been improved. The purpose of this research was to determine if improvement in articulatory proficiency is accompanied by an increase in oral sensitivity.

PROCEDURE: Twenty children who had received speech therapy to correct misarticulation of speech sounds were compared for oral sensitivity with twenty children who were enrolled in speech therapy for correction of similar sounds. Oral sensitivity was measured by requiring the subject to discriminate between pairs of plastic forms placed in the mouth. There were fifty-five pairs; the subject's score was the number of errors. The groups' average scores, standard deviations, and types of errors were compared.

FINDINGS: Both groups performed approximately the same on the test of oral sensitivity on all parameters considered.

CONCLUSIONS: It was concluded that training which increases articulatory proficiency does not also improve oral sensitivity.

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Martin A. Kammermeier, Chairman

LANGUAGE SKILLS OF ARTICULATORY DEFECTIVE CHILDREN

Norman J. Sabrowsky

PROBLEM: The purpose of the study was to determine whether or not differences in certain language skills existed between children with articulation defects and children who have never experienced speech difficulties.

PROCEDURE: The children with articulation defects that comprised the experimental group met the following criteria: had been enrolled in speech therapy for two or more years, correcting misarticulation of the /r/ or /s/ sounds; had at least two different speech clinicians test the articulation and administer at least one school year of speech therapy. Additional criteria that were included to permit adequate comparison to a control group included consideration of the following: intelligence quotient, vision, age, no known physical abnormalities, normal sensitivity of hearing, and socioeconomic status. Six subtests of the Illinois Test of Psycholinguistic Abilities were administered to the twenty-one experimental subjects and to twenty-one control subjects who had no speech difficulties. The subtests included were: Visual Reception, Visual Sequential Memory, Auditory Sequential Memory, Visual Association, Verbal Expression and Grammatic Closure. The differences between mean scale scores of the groups for each subtest was assessed using a t test.

FINDINGS: No significant differences were found in the language skills tested between children with articulation defects and the normal control subjects. A trend of poorer performance became evident on the following subtest: Verbal Reception, Visual Sequential Memory, Auditory Sequential Memory, Visual Association and Grammatic Closure. Comparison showed a slightly larger range of scores for the experimental group than for the control group.

CONCLUSION: As a result of the study it can be concluded that children with articulation defects who have had at least two years of speech therapy are similar in linguistic skills to children who have never experienced speech problems.

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Martin A. Kammermeier, Chairman

RELATION OF INCREASED ORAL ASSESSMENT SKILL TO ARTICULATION SKILL

Barbara Rue Schons

PROBLEM: The purpose of this study was to determine the relationship between an increased skill in oral assessment is a correlation between the two skills and that a deficiency in one may be predictive of a deficiency in the other.

PROCEDURE: Thirteen subjects with functional misarticulations between the ages of 8.4 years to 11.4 years were chosen. Each subject was given a pre-program articulation test and an oral discrimination test. All subjects completing the training program were given identical post-program tests. Eleven of the subjects completed the program.

The training program consisted of five activities designed to increase the oral assessment skills of the subjects. Five half-hour training sessions were held for each subject.

FINDINGS: Post-program tests indicated an increase in oral assessment skills for all subjects completing the program. Seven of the subjects showed a decrease in articulation score, three showed an increase, and one subject showed no change. According to the sign test the results were significant at the .055 level in the negative direction.

CONCLUSIONS: It was concluded that an increase in oral assessment skill does not cause an increase in articulation skill.

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Martin A. Kammermeier, Chairman

LINGUISTIC COMPREHENSION IN CHILDREN AS A FUNCTION OF TESTING METHOD

Teresa M. Sowada

PROBLEM: Currently, the field of speech pathology is emphasizing the measuring of the young child's comprehension of linguistic structures and discovering the hierarchical order in which these structures are acquired. Several methods employing the use of grammatical contrasts have been devised. However, no inter-method comparisons of their effectiveness have been conducted. This study was designed to compare the pointing and demonstration test methodologies. The hypothesis was that there would be no significant difference in the values of the resultant comprehension test scores when comprehension was measured by a pointing method or by a demonstration method.

PROCEDURE: Eight language-normal children of approximately three years of age were selected as subjects. Each subject's comprehension of certain grammatical structures was tested by two methods. Method P involved pointing to the one of four foils which correctly depicted a grammatical utterance. Method D involved demonstrating the meaning of a grammatical utterance with toy objects. The order of the presentations was counterbalanced. Both employed the use of grammatical contrasts, that is, paired utterances which differed only in the grammatical structure to be tested. Two matched sets of utterance pairs were devised for each contrast. This enabled the administration of each method with sentences having identical grammatical structure, but not identical vocabulary.

FINDINGS: The results of this analysis indicated that there was no significant difference between the matched sets, and there was no interaction effect between the methods and sets. Further, while the D scores exceeded those for P, this difference was not significant. Finally, the resultant hierarchies of grammatical contrast difficulty for Methods P and D were found to be not significantly different.

CONCLUSIONS: It was concluded that, within the limits of this investigation, neither the resultant total scores nor the resultant hierarchies of grammatical contrast difficulty were significantly different for the pointing and demonstration methods of testing linguistic comprehension.

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Martin A. Kammermeier, Chairman

A CORRELATIONAL STUDY OF INTELLIGENCE AND LANGUAGE

Beverly N. Strong

PROBLEM: There is a disproportionately large number of children in the low ability group who have language problems. Therefore it is important when dealing with mentally retarded children to understand the relationship between mental ability and psycholinguistic ability.

PROCEDURE: Children ranging in age from 5-0 to 8-11 were tested by school psychologists with the Stanford Binet. Those scoring less than 90 IQ points were tested with the Illinois Test of Psycholinguistic Abilities. They totaled thirty children. Correlations between mental age and language age and the individual ITPA subtests and mental age were calculated using the Pearson Product-Moment formula.

RESULTS: A correlation of .82 was found between language age and mental age. This is a higher correlation than that found in previous research with normal children. Correlations of all ITPA subtests and MA were higher than those found in previous research with normal children.

CONCLUSIONS: There are apparent differences between the relationship of language function and mental ability in retarded children and non-retarded children.

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Martin A. Kammermeier, Chairman

THE EFFICACY OF AUDITORY DISCRIMINATION TRAINING IN THE CORRECTION OF A SELECTED MISARTICULATION

Maxine M. Zdon

PROBLEM: Questions have been raised concerning the use of auditory discrimination training in the treatment of functional articulation disorders. The results of research have presented equivocal data. This study was designed to determine if children who did not receive auditory discrimination training for the /er/ phoneme did as well on a production task for that phoneme as those children who received the auditory discrimination training. It was hypothesized that there would be no difference between the groups tested.

PROCEDURE: Thirty-two children met the criterion necessary for inclusion in the study. The total group of subjects was divided into two groups designated experimental and control. Those in the experimental group received discrimination training and the /er/ production program. Those in the control group received only the /er/ production program. The range and distribution of responses for each group were compared by a statistical procedure.

FINDINGS: Subject to the discussion and limitations of the study, the following conclusions were reached:

1. Children who do not receive discrimination training do as well on a sound production task as the children who do receive the training.
2. Discrimination training by itself does not appear to improve the articulatory behavior of the subjects.
3. Discrimination training appears to benefit those children with more severe speech disorders.
4. There is a difference between the performance of boys and girls on a production task with or without discrimination training.

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Martin A. Kammermeier, Chairman

INCIDENCE OF FUNCTIONAL ARTICULATION DISORDERS IN SERVICED AND UNSERVICED SCHOOLS

Jack Francis Zlimen

PROBLEM: Speech therapists in schools spend much time working with children who have functional articulation disorders. Because the rate of improvement in such cases is relatively slow it is difficult to attribute improvement to speech therapy or to maturation. It was of interest to learn whether speech therapy or maturation was most effective in improving articulation.

PROCEDURE: The method used to determine the differential contribution of speech therapy and maturation was to survey the incidence of functional articulation disorders in schools that had speech therapy services and those that had no speech therapy services.

The subjects consisted of two groups of students chosen from grades 3-6. Group A was chosen from a school that had speech therapy services for at least six years. Group B was chosen from a school that had no previous speech therapy. The subjects from the respective groups were screened by one graduate and one undergraduate student for functional articulation defects. Students who were found to have defective articulation were referred to this writer and one other examiner for a final evaluation of their speech.

FINDINGS: The results of the study indicated that Group A (speech therapy available) had one half as many functional articulation errors as Group B (no speech therapy). The findings failed to show a uniform decrease of articulation errors as the grade level increased as had been observed in previous research in this area. The types of articulation errors for each group were very similar. Of these errors, approximately 85 percent occurred on the sibilant sounds.

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Martin A. Kammermeier, Chairman

